

ELEMENTARY COMPUTER SCIENCE

LEVEL 1B | Grades 3-5

Standards Deconstruction with Content Area Connections





Dr. Kim S. Benton State Superintendent of Education, Interim

Dr. Marla Davis Associate State Superintendent, Academic Liaison

Wendy Clemons Executive Director, Office of Secondary Education and Professional Development **Dr. Tenette Smith** Executive Director, Office of Elementary Education and Reading

Dr. Louella Mack-Webster Director of STEM and Middle/High Computer Science Melissa Banks Director of Digital Learning and Elementary Computer Science

Elise Brown State Digital Learning Coordinator

Michelle Talley Instructional Technology Specialist



Shelly Hollis Director

Lizzie Brandon Project Manager Amanda Taylor Project Manager

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MISSISSIPPI DEPARTMENT OF EDUCATION			
Heather Ascherl Digital Learning Coach	Dr. Chancy Fort Director of Academic Counseling Programs and Support Services	Tommisha Johnson Mathematics Content Specialist	Rosalyn Pendleton Digital Learning Coach
Jasmine Bell Regional Digital Learning Coordinator	Dr. Kevin Gaylor Science Content Specialist	Morgan Jones Digital Learning Coach	Gina Pepperman Regional Digital Learning Coordinator
Natalie Breithaupt Regional Digital Learning Coordinator	Tamalyn Generette Digital Learning Coach	Brett Mayfield Regional Digital Learning Coordinator	Elizabeth Simmons Director of Instructional Materials and Library Media
Natalie Crowder ELA Content Specialist	Shannon Griffin Digital Learning Coach	Lakyn Kirk Digital Learning Coach	Lillie Sweazy Digital Learning Coach
Lindsey Dickerson Digital Learning Coach	John Harlow Digital Learning Coach	Jessica McAndrews Digital Learning Coach	Candice Taylor Early Childhood Instructional Specialist/619 Coordinator
John Eaton Digital Learning Coach	Dr. Bacardi Harris Digital Learning Coach	Tanjanikia McKinney Science Professional Development Coordinator	Chandrea Walker Director of Career and Technical Education Counseling
Sandra Elliot English Learner Student Intervention Support Specialist	Christie Hatten Digital Learning Coach	Valerie McKenzie Digital Learning Coach	Kandra Wilkins Mathematics Professional Development Coordinator
Dr. Diane Fisher Digital Learning Coach	Christy Hunt Special Education Professional Development Coordinator	LaShana Middleton Digital Learning Coach	Laurie Weathersby Bureau Director, Student Intervention Services K-12

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INTRODUCTION

The Mississippi College- and Career-Readiness Standards (MCCRS) for Computer Science were adopted in 2018. The standards are organized by five core concepts: Computing Systems, Networks and the Internet, Data and Analysis, Algorithms and Programming, and Impacts of Computing. These core concepts represent major content areas in the field of Computer Science. Additionally, the standards are divided in the following grade bands:

- Level 1A: Grades K-2
- Level 1B: Grades 3-5
- Level 2: Grades 6-8
- Level 3A: Grades 9-10
- Level 3B: Grades 11-12

Purpose

The Standards Deconstruction with Content Area Connections were created to:

- 1. deconstruct the MCCRS for Computer Science standards so that educators have a better understanding of the skills that need to be taught;
- 2. provide a progression of grade-appropriate skills within the grade band covered by the standards; and
- 3. make connections to other content area standards so that educators can easily integrate computer science instruction into their lessons.

Organization

Each section within the *Standards Deconstruction with Content Area Connections* covers one of the five core concepts. Within the section, a summary of each core concept is provided, followed by the Computer Science standards that fall within that concept. Each standard is broken down into an overarching goal and grade-appropriate learning targets for each grade level within the grade band. **NOTE:** Students should demonstrate mastery of the standard by the end of fifth grade. Therefore, learning targets may repeat and/or increase in rigor from grade level to grade level.



Lastly, suggested content area connection activities for ELA, Math, Science, Social Studies, Library, and Counseling, are listed. The content area connections provided are not exhaustive, but rather are intended to provide a starting point for integration. If a content area connection is left blank, it does not necessarily indicate that a meaningful connection cannot be made. Educators are encouraged to use the feedback form (<u>https://forms.office.com/r/nWjWuGwXWP</u>) to provide the MDE with additional content connections.

Throughout the document, educators will encounter words and phrases that are in **bold and purple** font. These words and phrases may be unfamiliar or have context-specific meanings and are defined in the glossary.

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CONCEPT | COMPUTING SYSTEMS

People interact with a wide variety of computing devices that collect, store, analyze, and act upon information in ways that can affect human capabilities both positively and negatively. The physical components (hardware) and instructions (software) that make up a computing system communicate and process information in digital form. An understanding of hardware and software is useful when troubleshooting a computing system that does not work as intended.

CS.1B.1 CS.1B.1 Describe how internal and external parts of computing devices function to form a system.

Computing devices often depend on other devices or components.

CS.1B.1a Students should describe how devices and components interact using correct terminology.

Overarching Goal

LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
I can discuss how internal and external parts form a system.	I can discuss how internal and external parts form a system.	I can discuss how internal and external parts form a system.	
(CS.1B.1)	(CS.1B.1)	(CS.1B.1)	
 Identify internal parts of a computing device (e.g., motherboard, central processing 	 Identify internal parts of a computing device (e.g., motherboard, central 	 Identify internal parts of a computing device (e.g., motherboard, central 	

 unit, random access memory, etc.) and their purpose using correct terminology Identify external parts of a computing device (e.g., mouse, monitor, keyboard, etc.) and their purpose using correct terminology Discuss functions of hardware and software (e.g., the purpose of the operating system, keyboard, mouse, etc.) 	 processing unit, random access memory, etc.) and their purpose using correct terminology Identify external parts of a computing device (e.g., mouse, monitor, keyboard, etc.) and their purpose using correct terminology Discuss functions of hardware and software (e.g., the purpose of the operating system, keyboard, mouse, etc.) 	 processing unit, random access memory, etc.) and their purpose using correct terminology Identify external parts of a computing device (e.g., mouse, monitor, keyboard, etc.) and their purpose using correct terminology Discuss functions of hardware and software (e.g., the purpose of the operating system, keyboard, mouse, etc.)
I can explain how devices and	I can explain how devices and	I can explain how devices and
components work together. (CS.1B.1a)	components work together. (CS.1B.1a)	components work together. (CS.1B.1a)
 Explore how internal and 	 Explore how internal and 	 Explore how internal and
external parts of computing	external parts of computing	external parts of computing
systems work together to form a	systems work together to form	systems work together to form
system	a system	a system
Discuss the relationship between	Discuss the relationship	Discuss the relationship
devices and components using	between devices and	between devices and
correct terminology	components using correct	components using correct

CS.1B.1 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	W.3.2a-d SL.3.1a-d	W.4.2a-d SL.4.1a-d	W.5.2a-d SL.5.1a-c
	 Example Connection Activity: Students can explore/use different apps/programs to produce and publish writings describing how devices and components interact using correct terminology 	 Example Connection Activity: Students can explore/use different apps/programs to produce and publish writings describing how devices and components interact using correct terminology 	 Example Connection Activity: Students can explore/use different apps/programs to produce and publish writings describing how devices and components interact using correct terminology
Math			
Science	L.3.1	L.4.1.3	
	 Example Connection Activity: Students can create visual depictions of how computer parts work together and compare them to how internal and external structures allow an organism to function 	 Example Connection Activity: Students can create visual depictions of how computer parts work together and compare them to how internal and external structures allow an organism to function 	

Social Studies	Cl.3.1-2	
	 Example Connection Activities: Students can create a picture dictionary of community and local authority figures and their functions Students can create a picture dictionary of the three branches of government at the local level and their functions 	
Library		
Counseling		

CS.1B.2 CS.1B.2 Model how computer hardware and software work together as a system to accomplish tasks.

For a person to accomplish tasks with a computer, both hardware and software are needed. At this stage, a model should only include the basic elements of a computer system, such as **input**, **output**, **processor**, **sensors**, and **storage**.

CS.1B.2a Students should model how computer hardware and software work together to accomplish tasks.

Overarching Goal

Demonstrate how hardware and software work together

LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
I can demonstrate how hardware and	I can demonstrate how hardware and	I can demonstrate how hardware and	
software work in partnership.	software work in partnership.	software work in partnership.	
(CS.1B.2, CS.1B.2a)	(CS.1B.2, CS.1B.2a)	(CS.1B.2, CS.1B.2a)	
 Identify software and hardware 	 Identify software and hardware 	 Identify software and hardware 	
Know functions of hardware and	Know functions of hardware and	Know functions of hardware and	
software	software	software	
Model relationships between	 Model relationships between 	Model relationships between	
hardware and software (e.g., use	hardware and software (e.g., use	hardware and software (e.g., use	
mouse and keyboard to input	mouse and keyboard to input	mouse and keyboard to input data	
data into a document, etc.) to	data into a document, etc.) to	into a document, etc.) to	
complete tasks, including input,	complete tasks, including input,	complete tasks, including input,	
output, processor, sensors, and	output, processor, sensors, and	output, processor, sensors, and	
storage	storage	storage	
 Use hardware and software to 	 Use hardware and software to 	 Use hardware and software to 	
complete tasks (e.g., save a word	complete tasks (e.g., save a word	complete tasks (e.g., save a word	
document to the storage of the	document to the storage of the	document to the storage of the	
computer)	computer)	computer)	

CS.1B.2 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	RI.3.3	RI.4.3	RI.5.3
	RI.3.4	RI.4.4	RI.5.4
	RI.3.5	RI.4.5	RI.5.5
	 Example Connection Activity: Students can use apps/programs to create a visual representation (e.g., diagram, chart, flow chart) showing 	 Example Connection Activity: Students can use apps/programs to create a visual representation (e.g., diagram, chart, flow chart) showing 	 Example Connection Activity: Students can use apps/programs to create a visual representation (e.g., diagram, chart, flow chart) showing
	how devices and components	how devices and components	how devices and components
	interact using correct terminology	interact using correct terminology	interact using correct terminology
Math			
Science	L.3.1	L.4.1.3	
	 Example Connection Activity: See CS.1B.1; these can be combined in the same project 	 Example Connection Activity: See CS.1B.1; these can be combined in the same project 	
Social Studies	 CI.3.3 Example Connection Activity: Students can create a web graph of a community and the role everyone plays in it 		
Library			

Counseling	B-SS.2	B-SS.2	B-SS.2
	B-SS.6	B-SS.6	B-SS.6
	B-SS.9	B-SS.9	B-SS.9
	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually reflect on their experiences through a written essay 	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually reflect on their experiences through a written essay Students can draw upon the knowledge they gained in third grade when they compared the skills needed at school with those needed by workers 	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually reflect on their experiences through a written essay Fifth graders can apply personal, ethical, and work habit skills

CS.1B.3 CS.1B.3 Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

Although computing systems may vary, common troubleshooting strategies can be used on all of them.

CS.1B.3a Students should be able to identify common hardware and software problems.

CS.1B.3b Students should identify and implement various troubleshooting strategies.

Overarching Goal Identify and resolve problems with hardware and software

LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
I can identify hardware and software	I can identify hardware and software	I can identify hardware and software	
problems. (CS.1B.3, CS.1B.3a)	problems. (CS.1B.3, CS.1B.3a)	problems. (CS.1B.3, CS.1B.3a)	
 Identify hardware and software 	 Identify hardware and software 	 Identify hardware and software 	
and their functions	and their functions	and their functions	
Identify indicators of hardware or	Identify indicators of hardware or	Identify indicators of hardware or	
software problems (e.g., device	software problems (e.g., device	software problems (e.g., device	
will not turn on, software	will not turn on, software	will not turn on, software	
unexpectedly shuts down, etc.)	unexpectedly shuts down, etc.)	unexpectedly shuts down, etc.)	
 Identify hardware and software 	 Identify hardware and software 	 Identify hardware and software 	
that is not working properly	that is not working properly	that is not working properly	
 Describe the problem using 	Describe the problem using	Describe the problem using	
accurate terminology (e.g., the	accurate terminology (e.g., the	accurate terminology (e.g., the	
monitor is not working because	monitor is not working because	monitor is not working because	
the power cord is disconnected,	the power cord is disconnected,	the power cord is disconnected,	
etc.)	etc.)	etc.)	

I can execute troubleshooting	I can execute troubleshooting	I can execute troubleshooting
strategies. (CS.1B.3, CS.1B.3b)	strategies. (CS.1B.3, CS.1B.3b)	strategies. (CS.1B.3, CS.1B.3b)
Identify common troubleshooting	Identify common troubleshooting	Identify common troubleshooting
strategies (e.g., check the device	strategies (e.g., check the device	strategies (e.g., check the device
is plugged in or charged, restart	is plugged in or charged, restart	is plugged in or charged, restart
the computer, etc.)	the computer, etc.)	the computer, etc.)
Implement common	Implement common	Implement common
troubleshooting strategies	troubleshooting strategies	troubleshooting strategies

CS.1B.3 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	W.3.2a-d	W.4.2a-d	W.5.2a-d
	W.3.6	W.4.6	W.5.6
	RI.3.5	RI.4.5	RI.5.5
	RI.3.5	RI.4.5	RI.5.5
	W.3.2 a-d	W.4.2 a-d	W.5.2 a-d
	W.3.6	W.4.6	W.5.6
	 Example Connection Activity: Students can use a digital graphic organizer (e.g., problem/solution) to create a classroom technology troubleshooting booklet 	 Example Connection Activity: Students can use a digital graphic organizer (e.g., problem/solution) to create a classroom technology troubleshooting booklet 	 Example Connection Activity: Students can use a digital graphic organizer (e.g., problem/solution) to create a classroom technology troubleshooting booklet

Math	 SMP.1 3.OA.8 Example Connection Activity: Facilitate a conversation about problem-solving and how it relates to math word problems 	 SMP.1 4.OA.2 4.OA.5 Example Connection Activity: Facilitate a conversation about problem-solving and how it relates to math word problems 	 SMP.1 5.NF.6 Example Connection Activity: Facilitate a conversation about problem-solving and how it relates to real world problems involving multiplication of fractions and mixed numbers
Science	 Science and Engineering Practices Example Connection Activity: Engage students in using the Science and Engineering Practices to identify the problems of a broken system, develop models of the system, and design solutions to repair the system 	 Science and Engineering Practices Example Connection Activity: Engage students in using the Science and Engineering Practices to identify the problems of a broken system, develop models of the system, and design solutions to repair the system 	 Science and Engineering Practices Example Connection Activity: Engage students in using the Science and Engineering Practices to identify the problems of a broken system, develop models of the system, and design solutions to repair the system
Social Studies			
Library			

Counseling	B-LS.4	B-LS.4	B-LS.4
	B-LS.7	B-LS.7	B-LS.7
	B-SM.5	B-SM.5	B-SM.5
	 Example Connection Activities: Facilitate a discussion about goal setting and brainstorm strategies to meet short- and long-term goals Students can identify common problems that may impede reaching our goals and troubleshoot how to overcome these problems Students can use technology to create a weekly goal sheet to track progress 	 Example Connection Activities: Facilitate a discussion about goal setting and brainstorm strategies to meet short- and long-term goals Students can identify common problems that may impede reaching our goals and troubleshoot how to overcome these problems Students can use technology to create a weekly goal sheet to track progress 	 Example Connection Activities: Facilitate a discussion about goal setting and brainstorm strategies to meet short- and long-term goals Students can identify common problems that may impede reaching our goals and troubleshoot how to overcome these problems Students can use technology to create a weekly goal sheet to track progress



CONCEPT | NETWORKS AND THE INTERNET

Computing devices typically do not operate in isolation. **Networks** connect computing devices to share information and resources and are an increasingly integral part of computing. Networks and communication systems provide greater connectivity in the computing world by providing fast, secure communication and facilitating innovation.

NI.1B.1 NI.1B.1 Model how information is broken down into smaller pieces, transmitted as **packets** through multiple devices over networks and the internet, and reassembled at the destination.

Information is sent and received over physical or wireless paths. It is broken down into smaller pieces called packets, which are sent independently and reassembled at the destination.

NI.1B.1a Students should demonstrate their understanding of how information flows over networks and the internet.

Overarching Goal	Model how information is sent and received
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LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
I can explain how information (a packet) is sent and received. (NI.B1.1,	I can explain how information (a packet) is sent and received. (NI.B1.1,	I can explain how information (a packet) is sent and received. (NI.B1.1,	
NI.B1.1a)	NI.B1.1a)	NI.B1.1a)	
Define packet	Define packet	Define packet	

 Examine how information flows over networks using code Understand that information is decoded or reassembled at the destination to become information that can be understood 	 Examine how information flows over networks using code Understand that information is decoded or reassembled at the destination to become information that can be understood 	 Examine how information flows over networks using code Understand that information is decoded or reassembled at the destination to become information that can be understood
I can model how packets work. (NI.B1.1, NI.B1.1a) • Relate packets to passing coded	I can model how packets work. (NI.B1.1, NI.B1.1a) • Relate packets to passing coded	 I can model how packets work. (NI.B1.1, NI.B1.1a) Relate packets to passing coded
messagesCreate and send coded messages to classmates	 messages Send packets using coded messages using the roles of sender, deliverer, decoder 	 messages Send packets using coded messages using the roles of sender, deliverer, decoder
 I can explain different types of networks. (NI.B1.1) Identify different types of networks (e.g., local area network (LAN), wide area network (WAN), etc.) 	 I know different types of networks. (NI.B1.1) Identify different types of networks (e.g., local area network (LAN), wide area network (WAN), etc.) Understand when different types of networks are used 	 I know different types of networks. (NI.B1.1) Identify different types of networks (e.g., local area network (LAN), wide area network (WAN), etc.) Understand when different types of networks are used

NI.1B.1 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	SL.3.4	SL.4.4	SL.5.4
	 Example Connection Activity: Students can create and act out a play to demonstrate their understanding of how information flows over networks and the internet 	 Example Connection Activity: Students can create and act out a play to demonstrate their understanding of how information flows over networks and the internet 	 Example Connection Activity: Students can create and act out a play to demonstrate their understanding of how information flows over networks and the internet
Math			
Science	 L.3.2.1 Example Connection Activity: Students can create a flowchart comparing how cells are passed from parent to offspring and broken down into individual traits that reassemble to create a new organism, while referencing how information is broken down, transmitted, and reassembled 		
Social Studies			
Library			
Counseling			

NI.1B.2 NI.1B.2 Discuss real-world cybersecurity problems and how personal information can be protected.

Just as we protect our personal property offline, we also need to protect our devices and the information stored on them. Information can be protected using various security measures.

NI.1B.2a Students should be able to explain what passwords are and why we use them and use strong passwords to protect devices and information from unauthorized access.

NI.1B.2b Students should be able to list several real-world cybersecurity issues and discuss how personal information can be protected

Overarching Goal	Discuss cybersecurity and protection of information
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LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
 I can use various security measures. (NI.1B.2b) Explain what personal information is Research methods can be used to protect personal information Create a password that is secure Understand how to safely browse the internet 	 I can use various security measures. (NI.1B.2b) Explain what personal information can be used for Define hacking Understand the negative consequences of hacking Create a password that is secure Identify reputable websites 	 I can use various security measures. (NI.1B.2b) Explain what personal information can be used for Define hacking Create a password that is secure Identify reputable websites Explain phishing attacks Understand negative consequences of phishing attacks Explore methods to defeat hacking and phishing attacks 	

 I can explain the importance of my personal information. (NI.1B.2, NI.1B.2a) Explain why personal information needs to be protected Apply ways to keep information safe Develop a personal method to prevent the sharing of personal information information 	 I can explain the importance of my personal information. (NI.1B.2, NI.1B.2a) Explain why personal information needs to be protected Apply ways to keep information safe Develop a personal method to prevent the sharing of personal information Explain the need for antivirus software and keeping systems updated
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NI.1B.2 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	RI.3.9 W.3.2 a-d SL.3.4-6	RI.4.9 W.4.2 a-d SL.4.4-6	RI.5.9 W.5.2 a-d SL.5.4-6
	 Example Connection Activities: Students can read articles about cybersecurity and passwords and use a graphic organizer to list several real-world cyber security issues and discuss how to protect their personal information Students can use an app/program to explain what passwords are and the importance of creating them when dealing with real-world cybersecurity issues 	 Example Connection Activities: Students can read articles about cybersecurity and passwords and use a graphic organizer to list several real-world cyber security issues and discuss how to protect their personal information Students can use an app/program to explain what passwords are and the importance of creating them when dealing with real-world cybersecurity issues 	 Example Connection Activities: Students can read articles about cybersecurity and passwords and use a graphic organizer to list several real-world cyber security issues and discuss how to protect their personal information Students can use an app/program to explain what passwords are and the importance of creating them when dealing with real-world cybersecurity issues
Math			
Science	Science and Engineering Practices: Developing and Using Models Example Connection Activity: • Students can draw models that help demonstrate their knowledge of cyber security	 Science and Engineering Practices: Developing and Using Models Example Connection Activity: Students can draw models that help demonstrate their knowledge of cyber security 	Science and Engineering Practices: Developing and Using Models Example Connection Activity: • Students can draw models that help demonstrate their knowledge of cyber security
Social Studies			

Counseling	M 4	M 4	M 4
	B-LS.7	B-LS.7	B-LS.7
	B-SS.1-2	B-SS.1-2	B-SS.1-2
	 Example Connection Activities: Students can role play being	 Example Connection Activities: Students can role play being	 Example Connection Activities: Students can role play being
	managers of a new company that	managers of a new company that	managers of a new company that
	needs to hire employees and	needs to hire employees and decide	needs to hire employees and decide
	decide what personal information	what personal information they	what personal information they
	they would want to know about	would want to know about the	would want to know about the
	the prospective employees They will present this information	prospective employees They will present this information	prospective employees They will present this information
	to the class in groups and discuss	to the class in groups and discuss	to the class in groups and discuss
	the importance of keeping this	the importance of keeping this	the importance of keeping this
	information safe Students will begin development	information safe Students will begin development of	information safe Students will begin development of
	of a Personal Portfolio Folder	a Personal Portfolio Folder which	a Personal Portfolio Folder which
	which will be password protected Facilitate a discussion about	will be password protected Facilitate a discussion about	will be password protected Facilitate a discussion about
	cybersecurity and passwords	cybersecurity and passwords	cybersecurity and passwords



CONCEPT | DATA AND ANALYSIS

Computing systems exist to process data. The amount of **digital data** generated in the world is rapidly expanding, so the need to process data effectively is increasingly important. Data is collected and stored so that it can be analyzed to better understand the world and make more accurate predictions.

DA.1B.1 DA.1B.1 Organize and present collected data visually to highlight relationships and support a claim.

Raw data has little meaning on its own. Data is often sorted or grouped to provide additional clarity. Organizing data can make interpreting and communicating it to others easier. Data points can be clustered by a number of commonalities. The same data could be manipulated in different ways to emphasize particular aspects or parts of the data set.

DA.1B.1a Students should be able to collect data and present the information in an organized way to highlight relationships and support a claim.

overarching doar conect, organize, and present data

LEARNING TARGETS				
THIRD GRADE FOURTH GRADE FIFTH GRADE				
I can collect and analyze data.	I can collect and analyze data.	I can collect and analyze data.		
(DA.1B.1)	(DA.1B.1)	(DA.1B.1)		
Collect data	Collect data	Collect data		

 Organize (categorize and classify data to make it more usable) collected data Analyze data (describe, condense, summarize, and evaluate data) 	 Organize (categorize and classify data to make it more usable) collected data Analyze data (describe, condense, summarize, and evaluate data) 	 Organize (categorize and classify data to make it more usable) collected data Analyze data (describe, condense, summarize, and evaluate data)
 I can present data in an organized way. (DA.1B.1a) Present organized data using visuals (e.g., tables, graphs, etc.) 	 I can present data in an organized way to highlight relationships and support a claim. (DA.1B.1a) Present organized data using visuals (e.g., tables, graphs, etc.) Reorganize data using different categories or attributes 	 I can present data in an organized way to highlight relationships and support a claim. (DA.1B.1a) Present organized data using visuals (e.g., tables, graphs, etc.) Reorganize data using different categories or attributes Identify the data organization that best highlights a relationship or supports a claim Present the new organization of data

DA.1B.1 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	W.3.1-2a-d W.3.7 W.3.9a-b RI.3.8	W.4.1-2a-d W.4.7 W.4.9a-b RI.4.8	W.5.1-2a-d W.5.7 W.5.9a-b RI.5.8
	 Example Connection Activities: Students collect, organize, and present evidence to support their answers/claims Students can annotate text to find logical connections between sentences and paragraphs Students can use apps or programs to create visual representations to demonstrate the logical connections 	 Example Connection Activities: Students collect, organize, and present evidence to support their answers/claims Students can annotate text to find logical connections between sentences and paragraphs Students can use apps or programs to create visual representations to demonstrate the logical connections 	 Example Connection Activities: Students collect, organize, and present evidence to support their answers/claims Students can annotate text to find logical connections between sentences and paragraphs Students can use apps or programs to create visual representations to demonstrate the logical connections
Math	 3.MD.3 3.MD.4 Example Connection Activities: Collect, organize, and present data by collecting surveys (e.g., favorite candy, sport, etc.) Use cause and effect relationships of the collected and displayed data 		 5.G.1 5.G.2 Example Connection Activity: Use graphing to highlight or propose cause and effect relationships and to predict outcomes (e.g., operate a robot at uniform speed and at increasing time intervals to predict how far the robot travels)

Science	Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information	Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information	Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information
	L.3.2.4	L.4.1.2	P.5.5A.4
	P.5.5B.2	E.4.9B.1	
	 Example Connection Activities: Students can create a chart showing a human and the traits that it inherited from each parent to show that traits are passed from parent to offspring Students can complete an experiment where they add increasing amounts of salt/sugar to water to show how concentration is relative to the amount of solute and solvent in a solution, focusing on the data collection, organization, and analyzation to prove or disprove a theory 	 E.4.9C.1 Example Connection Activity: Students can create a chart/diagram of how the internal organ systems interact to prove that if one malfunctions, they all malfunction 	 Example Connection Activity: Students can mix various amounts of solute and solvent, calculate the concentration, and graphically represent concentration vs. amount of solute and solvent

Social Studies	G.3.4		
	 Example Connection Activity: Students can create graphs to evaluate patterns of population distributions 		
Library	RES.EV.3.1-5	RES.EV.3.1-5	RES.EV.3.1-5
	Example Connection Activities: (See	Example Connection Activities: (See	Example Connection Activities: (See
	Finding Innovative Solutions in the <u>2-3</u>	Creating Bibliographies in the $4-5$	American Revolutionary War in the <u>4-5</u>
	Library Lesson Plans	Library Lesson Plans	Library Lesson Plans
	• Read Farmer Will Allen by Jacqueline	 Students will use Explora 	 Students will use atlases to locate
	Briggs Martin and have students	(MAGNOLIA) to research their	places regarding the American
	discuss different inventors or	assigned animal	Revolutionary War
	innovators	 Students will use the gathered 	Students will use Google Maps to
	Students will use Explora	information to complete either a	create a route between each place
	(MAGNOLIA) to research	printed or digital Frayer model or	(Google Maps will allow students to
	vermicomposting	other graphic organizer	learn about each location while
	Students Will use the gathered		creating the route)
	nitionnation to complete either a		
	printed or digital Frayer model		

Counseling	M 4	M 4	M 4
	M 6	M 6	M 6
	B-LS.4	B-LS.4	B-LS.4
	 Example Connection Activities: Students can identify one academic content area linked to each of the six career paths Students can identify training and education for two career options Students can gather information and present the information to a small group of peers during a chartmaking activity 	 Example Connection Activities: Students can identify one academic content area linked to each of the six career paths Students can identify training and education for two career options Students can gather information and present the information to a small group of peers during a chartmaking activity 	 Example Connection Activities: Students can identify one academic content area linked to each of the six career paths Students can identify training and education for two career options Working with a team, students can discuss and visually represent the relationship of current learning to the responsibilities of workers in a specific career path and visually represent the post-secondary training/education a person in that career path needs to succeed

DA.1B.2 DA.1B.2 Use data to highlight or propose cause and effect relationships, predict outcomes, or communicate an idea.

The accuracy of data analysis is related to how realistically data is represented. **Inferences** or **predictions** based on data are less likely to be accurate if the data is not sufficient or if the data is incorrect in some way.

DA.1B.2a Students should be able to refer to data to highlight or propose cause and effect relationships and predict outcomes when communicating an idea.

Overarching Goal	ing Goal Use data to support ideas		
		LEARNING TARGETS	

THIRD GRADE	FOURTH GRADE	FIFTH GRADE
I can use data to support ideas.	I can use data to support ideas.	I can use data to support ideas.
(DA.1B.2, DA.1B.2a)	(DA.1B.2, DA.1B.2a)	(DA.1B.2, DA.1B.2a)
Collect, organize, and analyze data	• Collect, organize, and analyze data	Collect, organize, and analyze data
Use data to communicate an idea	Use data to communicate an idea	Use data to communicate an idea
 Use data to highlight cause and 	 Use data to highlight cause and 	 Use data to propose cause and
effect relationships	effect relationships	effect relationships
	 Use data to propose cause and 	 Use data trends to predict
	effect relationships	outcomes
	Use data to predict outcomes	 Use data to predict outcomes

DA.1B.2 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	RI.3.1 RI.3.3 RI.3.8 W.3.2a-d W.3.7	RI.4.1 RI.4.3 RI.4.8 W.4.2a-d W.4.7	RI.5.1 RI.5.3 RI.5.8 W.5.2a-d W.5.7
	 Example Connection Activity: Students will conduct research and use a presentation program to visually display the information and findings they gather 	 Example Connection Activity: Students will conduct research and use a presentation program to visually display the information and findings they gather 	 Example Connection Activity: Students will conduct research and use a presentation program to visually display the information and findings they gather
Math	 3.MD.3 Example Connection Activity: Students can examine cause and effect relationships of the collected and displayed data 	 4.MD.4 Example Connection Activity: Students can examine and interpret the collected and displayed data 	 5.G.1 5.G.2 Example Connection Activity: Students will use graphing to highlight or propose cause and effect relationships and predict outcomes (e.g., operate a robot at uniform speed and at increasing time intervals to predict how far the robot travels)

Science	Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information	Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information	Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information
	L.3.4.3	E.4.9C.3	P.5.6.5 E.5.8B.1
	 Example Connection Activity: Students can create image charts to show how organisms with better camouflage are more like to survive than those without (i.e., cause and effect) 	 Example Connection Activity: Students can create a chart or timeline of how recorded human activities have affected the well- being of local/global bodies of water 	 Example Connection Activity: Students can perform an experiment where they measure and record the weight of different toy cars being launched off a ramp to measure the change in kinetic energy
Social Studies			

Example Connection Activities:			
Litample connection Activities:Litample connection(See Finding Innovative Solutions in the 2-3 Library Lesson Plans)(See Reporting the I Library Lesson Plans)• Read Farmer Will Allen by Jacqueline Briggs Martin and have students discuss different inventors or innovators• Students will use newspapers and the different elege • Students will use Explora (MAGNOLIA) to research vermicomposting• Students will use the different elege • Students will use the gathered information to complete a printed or digital Frayer model	Activities:Example Connection Activities:Vews in the 4-5(See American Revolutionary War in the 4-5 Library Lesson Plans)periodicals (e.g., magazines) to learn nents.Students will use Explora (MAGNOLIA) to research the American Revolutionary WarExploraStudents will use the gathered information to complete either a printed or digital graphic organizer which will include citationsStudents will use the graphic organizer to write a summary of the cause and effect of the American		
Counseling	M 4	M 4	M 4
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	M 6	M 6	M 6
	B-LS.7	B-LS.7	B-LS.7
	B-SS.1	B-SS.1	B-SS.1
	B-SS.6	B-SS.6	B-SS.6
	 Example Connection Activity: Student can compare and contrast the training and educational requirements for two careers by using a graphic organizer 	 Example Connection Activity: Student can compare and contrast the training and educational requirements for two careers by using a graphic organizer 	 Example Connection Activity: Students can create charts and visual presentations to depict the similarities and differences in the roles, responsibilities, skills, and training of workers (on-the-job training, apprenticeships, military, tech schools, community college, and four-year college) in different career paths

DA.1B.3 DA.1B.3 Store, copy, search, retrieve, modify, and delete information using a computing device and define the information stored as data.

All information stored and processed by a computing device is referred to as data. Data can be images, text documents, audio files, software programs or apps, video files, etc.

DA.1B.3a Students should be able to manipulate data through their use of software to complete tasks on a computing device.

Overarching Goal Manipulate data

LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
 I can define information stored as	 I can define information stored as	 I can define information stored as	
data. (DA.1B.3) Understand the information stored	data. (DA.1B.3) Understand the information	data. (DA.1B.3) Understand the information stored	
and processed by a computing	stored and processed by a	and processed by a computing	
device is data Identify examples of data stored on	computing device is data Identify examples of data stored	device is data Identify examples of data stored	
a computing device	on a computing device	on a computing device	
 I can manipulate data to complete	 I can manipulate data to complete	 I can manipulate data to complete	
tasks on a computing device. (DA.1B.3a) Store data using a computing	tasks on a computing device. (DA.1B.3a) Store data using a computing	tasks on a computing device. (DA.1B.3a) Store data using a computing	
device (e.g., save a document) Copy data using a computing	device (e.g., save a document) Copy data using a computing	device (e.g., save a document) Copy data using a computing	
device (e.g., copy and paste a	device (e.g., copy and paste a	device (e.g., copy and paste a	
shape)	shape)	shape)	

 Search for data on a device (e.g., search for a letter) 	 Search for data on a device (e.g., search for a letter) 	 Search for data on a device (e.g., search for a letter)
 Locate and retrieve data on a 	 Locate and retrieve data on a 	 Locate and retrieve data on a
device (e.g., look for a file and	device (e.g., look for a file and	device (e.g., look for a file and
open the file)	open the file)	open the file)
 Modify and delete data on a 	Modify and delete data on a	 Modify and delete data on a device
device (e.g., add text to an	device (e.g., add text to an existing	(e.g., add text to an existing
existing document, delete a file,	document, delete a file, edit the	document, delete a file, edit the
edit the color of a shape, etc.)	color of a shape, etc.)	color of a shape, etc.)

DA.1B.3 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	W.3.6	W.4.6	W.5.6
	 Example Connection Activity: Students can use apps or programs to save, retrieve and delete files when writing 	 Example Connection Activity: Students can use apps or programs to save, retrieve and delete files when writing 	 Example Connection Activity: Students can use apps or programs to save, retrieve and delete files when writing
Math	 3.OA.4 Example Connection Activity: Students can retrieve unknown, whole number values to complete multiplication or division problems 	 4.OA.3 Example Connection Activity: Students can retrieve numerical data from a word problem Students can modify a verbal expression into a numerical expression 	 5.OA.2 Example Connection Activity: Students can modify a numerical expression into a verbal expression

Science	Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information	P Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information P.4.9B.1	Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information
	 Example Connection Activity: Students can use internet browsers and computing devices to research and investigate means and methods used to identify three major types of rock 	 Example Connection Activity: Students can use devices to collect various types of climate data and analyze this data from various perspectives 	 Example Connection Activity: (See DA.1B.2) Students will save information from the ramp experiment into a graphing program to generate a graph then manipulate the data to record the change in outcomes
Social Studies			

Library	RES.EV.3.1-5	RES.EV.3.1-5	RES.EV.3.1-5
	 Example Connection Activities: (See Folklores, Fairy Tales, and Poems in the 2-3 Library Lesson Plans) Read Have You Heard About Lady Bird? by Marilyn Singer and have students discuss the differences between folklore, fairy tales, and poems Small groups will design and create their books using digital book maker platforms Students will learn about what information should and should not be shared when logging into a digital platform Students will use the Internet to find and save images to illustrate books 	 Example Connection Activities: (See Reporting the News in the 4-5 Library Lesson Plans) Students will use periodicals (e.g., newspapers and magazines) to learn the different elements Students will use Explora (MAGNOLIA) or print periodicals to write a current event summary on a technological breakthrough, including the cause and effect of the breakthrough Students can add images from the current event to the summary with appropriate citations 	 Example Connection Activities: (See American Revolutionary War in the 4-5 Library Lesson Plans) Students will use Explora (MAGNOLIA) to research the American Revolutionary War Students will use the gathered information to complete either a printed or digital graphic organizer which will include citations Students will use the graphic organizer to write a summary of the cause and effect of the American Revolutionary War

Counseling	B-SS.1	B-SS.1	B-SS.1
	 Example Connection Activities: Students can complete a checklist identifying their preferences for working conditions Students can create a career exploration guide and explore various careers using electronic and print resources Students can save their career exploration guide for comparison and revisions next year 	 Example Connection Activities: Students can complete a checklist identifying their preferences for working conditions Students can create a career exploration guide and explore various careers using electronic and print resources Students can save their career exploration guide for comparison and revisions next year 	 Example Connection Activities: Students can complete a checklist identifying their preferences for working conditions Students can create a career exploration guide and explore various careers using electronic and print resources Students can save their career exploration guide for comparison and revisions next year



CONCEPT | ALGORITHMS AND PROGRAMMING

An **algorithm** is a sequence of steps designed to accomplish a specific task. Algorithms are translated into **programs**, or code, to provide instructions for computing devices. Algorithms and programming control all computing systems, empowering people to communicate with the world in new ways and solve compelling problems. The development process to create meaningful and efficient programs involves choosing which information to use and how to process and store it, breaking apart large problems into smaller ones, recombining existing solutions, and analyzing different solutions.

AP.1B.1 AP.1B.1 Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

Different algorithms can achieve the same result, though sometimes one algorithm might be most appropriate for a specific situation.

AP.1B.1a Students should be able to look at different ways to solve the same task and decide which would be the best solution.

Overarching Goal Co	ompare and choose algorithms
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LEARNING TARGETS				
THIRD GRADE FOURTH GRADE FIFTH GRADE				
I can compare algorithms for a task.	I can compare algorithms for a task.	I can compare algorithms for a task.		
(AP.1B.1)	(AP.1B.1)	(AP.1B.1)		
 Identify different ways to solve	 Identify different ways to solve	 Identify different ways to solve		
the same problem	the same problem	the same problem		

 Weigh the benefits of varying	 Weigh the benefits of varying	 Weigh the benefits of varying
solutions	solutions	solutions
I can choose an algorithm for a task.	I can choose an algorithm for a task.	I can choose an algorithm for a task.
(AP.1B.1, AP.1B.1a)	(AP.1B.1, AP.1B.1a)	(AP.1B.1, AP.1B.1a)
Choose the best algorithm for the problem	 Choose the best algorithm for the problem 	• Choose the best algorithm for the problem

AP.1B.1 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	W.3.3 W.3.7 RL/RI.3.2	W.3.3 W.3.7 RL/RI.3.2	W.3.3 W.3.7 RL/RI.3.2
	 Example Connection Activity: Students can use a graphic organizer to record how different characters respond to problems in a text 	 Example Connection Activity: Students can use a graphic organizer to record how different characters respond to problems in a text 	 Example Connection Activity: Students can use a graphic organizer to record how different characters respond to problems in a text
Math	 SMP.1 3.NBT.2-3 Example Connection Activity: Students examine multiple problem-solving strategies to solve the same problem and determine which is most appropriate 	 SMP.1 4.NBT.5-6 Example Connection Activity: Students examine multiple problem-solving strategies to solve the same problem and determine which is most appropriate 	 SMP.1 5.NBT.6-7 Example Connection Activity: Students examine multiple problem-solving strategies to solve the same problem and determine which is most appropriate

Science	Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information	Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information	Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information
	E.3.10.4	P.4.6A.5	P.5.5A.5
	 Example Connection Activity: Students can work in groups to submit a method to clean up the pollution in a local pond, and then students will take notes and vote on which method would be the best and most efficient based on the scenario 	 Example Connection Activity: Students can work in groups to design a device that will convert energy from one form to another, and then students will take notes and vote on which method would be the best and most efficient based on the scenario 	 Example Connection Activity: Students can work in groups to design a vessel that can safely transport a dense subject through water at various distances/conditions, and then students will take notes and vote on which method would be the best and most efficient based on the scenario
Social Studies			
Library			

Counseling	M 1	M 1	M 1
	M 6	M 6	M 6
	B-SS.6	B-SS.6	B-SS.6
	B-SS.9	B-SS.9	B-SS.9
	 Example Connection Activities: Students can review basic skill areas and practice categorizing specific skills (e.g., personal skills, ethical skills, work habit skills, etc.) Students can discuss how these skills can be used to solve problems Students can then compare those skills to school and career success 	 Example Connection Activities: Students can review basic skill areas and practice categorizing specific skills (e.g., personal skills, ethical skills, work habit skills, etc.) Students can discuss how these skills can be used to solve problems Students can then compare those skills to school and career success 	 Example Connection Activities: Students can review basic skill areas and practice categorizing specific skills (e.g., personal skills, ethical skills, work habit skills, etc.) Students can discuss how these skills can be used to solve problems Students can then compare those skills to school and career success

AP.1B.2 AP.1B.2 Create programs that use variables to store and modify data.

Variables are used to store and modify data.

AP.1B.2a Students should understand how to use variables to store and modify data.

Overarching Goal	Create programs using variables	
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	LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE		
 I can use variables to store and modify data. (AP.1B.2, AP.1B.2a) Define variables (a label or descriptive name used to store information) (e.g., "difficulty" used to store the level of difficulty for a game, such as easy, moderate, expert) Becognize how to use variables 	 I can use variables to store and modify data. (AP.1B.2, AP.1B.2a) Define variables (a label or descriptive name used to store information) (e.g., "difficulty" used to store the level of difficulty for a game, such as easy, moderate, expert) Becognize how to use variables 	 I can use variables to store and modify data (AP.1B.2, AP.1B.2a) Define variables (a label or descriptive name used to store information) (e.g., "difficulty" used to store the level of difficulty for a game, such as easy, moderate, expert) Becognize how to use variables 		
 I can create variables to store and modify data. (AP.1B.2, AP.1B.2a) Create a variable to store data Modify data in the variable (e.g., adjust the "volume" variable from 1 to 3) 	 I can create variables to store and modify data. (AP.1B.2, AP.1B.2a) Create a variable to store data Modify data in the variable (e.g., adjust the "volume" variable from 1 to 3) Use mathematical operations to change a value stored in a variable (e.g., add or subtract variables) 	 I can create variables to store and modify data. (AP.1B.2, AP.1B.2a) Create a variable to store data Modify data in the variable (e.g., adjust the "volume" variable from 1 to 3) Use mathematical operations to change a value stored in a variable (e.g., add or subtract variables) 		

I can create a program that uses variables. (AP.1B.2)	I can create a program that uses variables. (AP.1B.2)	I can create a program that uses variables. (AP.1B.2)
 Create a program that uses	 Create a program that uses	 Create a program that uses
variables to store data	variables to store data	variables to store data
 Create a program that use	 Create a program that use	 Create a program that use
variables to modify data	variables to modify data	variables to modify data

AP.1B.2 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	RL.3.3	RL.4.3	RL.5.3
	 Example Connection Activity: Identify characters in a story and identifiable names and traits (e.g., one character/variable is called Juliet and is a girl, and the other character/variable is called Romeo and is a boy 	 Example Connection Activity: Identify characters in a story and identifiable names and traits (e.g., one character/variable is called Juliet and is a girl, and the other character/variable is called Romeo and is a boy 	 Example Connection Activity: Identify characters in a story and identifiable names and traits (e.g., one character/variable is called Juliet and is a girl, and the other character/variable is called Romeo and is a boy
Math	 3.OA.3 3.OA.8 3.MD.8 Example Connection Activity: Use variables, symbols, or formulas to solve mathematical equations 	 4.OA.2 4.OA.3 4.MD.3 4.MD.7 Example Connection Activity: Use variables, symbols, or formulas to solve mathematical equations 	 5.MD.5b Example Connection Activity: Use variables, symbols, or formulas to solve mathematical equations
Science			

Social Studies		
Library		
Counseling		

AP.1B.3 AP.1B.3 Create programs that include sequences, events, loops, and conditionals.

Control structures specify the order (sequence) in which instructions are executed within a program and can be combined to support the creation of more complex programs. Events allow portions of a program to run based on a specific action.

AP.1B.3a Students should create programs that include sequences, events, loops, and conditionals.

Overarching Goal Create programs with sequences, events, loops, and conditionals

LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
I can create programs that include	I can create programs that include	I can create programs that include	
sequences, events, loops, and	sequences, events, loops, and	sequences, events, loops, and	
conditionals.	conditionals.	conditionals.	
Create a program that includes	• Create a program that includes	• Create a program that includes	
sequences (an ordered set of	sequences (an ordered set of	sequences (an ordered set of	
instructions)	instructions)	instructions)	
Create a program that includes	Create a program that includes	Create a program that includes	
events (a change in the state of an	events (a change in the state of	events (a change in the state of	
object that is usually brought	an object that is usually	an object that is usually	
about as a result of an interaction)	brought about as a result of an	brought about as a result of an	
(e.g., rotate an object by pressing	interaction) (e.g., rotate an	interaction) (e.g., rotate an	
the left arrow on the keyboard)	object by pressing the left	object by pressing the left	
Create a program that includes	arrow on the keyboard)	arrow on the keyboard)	
loops (a repetition of a segment of	Create a program that includes	Create a program that includes	
a program)	loops (a repetition of a	loops (a repetition of a	
Create a program that includes	segment of a program)	segment of a program)	
conditionals ("if, then" statements			

that modify how code is executed)	Create a program that includes conditionals ("if then"	Create a program that includes conditionals ("if then"
	statements that modify how	statements that modify how
	code is executed) (e.g., if the	code is executed) (e.g., if the
	tile is pink, go right)	tile is pink, go right)

AP.1B.3 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	RL.3.2-5	RL.4.2-5	RL.5.2-5
	Example Connection Activity:	Example Connection Activity:	Example Connection Activity:
	 Students can create an animation by separating a story into different scenes and select a background, place characters, and program actions for each scene 	 Students can create an animation by separating a story into different scenes and select a background, place characters, and program actions for each scene 	 Students can create an animation by separating a story into different scenes and select a background, place characters, and program actions for each scene

Math	3.OA.1 3.OA.7	4.OA.5	5.OA.5
	 Example Connection Activities: Facilitate discussion on how loops in coding are related to repeated addition/multiplication Students will use a deck of playing cards to review basic multiplication and division problems as they apply the computer science concept of conditionals 	 Example Connection Activity: Students will create a number or shape pattern that follows a given rule and relate this to loops, sequences, and conditionals 	 Example Connection Activity: Students will create a number or shape pattern that follows a given rule and relate this to loops, sequences, and conditionals
Science	F.3.9	L.4.2.2	1 5 3a
			2.5.54
	P.3.5	E.4.9A.1	P.5.6
	P.3.5 Example Connection Activity:	E.4.9A.1 Example Connection Activity:	P.5.6 E.5.8A

Social Studies	CR.3.1	H.4.2	H.5.2
	 Example Connection Activity: Students can code animation to explain the voting process, highlighting the sequence of steps and any events, loops, or conditionals that may exist 	 Example Connection Activity: Students can code animation to show European exploration and settlement in Mississippi, highlighting the sequence of steps and any events, loops, or conditionals that may exist 	 Example Connection Activity: Students can code animation to trace the routes of European settlers, highlighting the sequence of steps and any events, loops, or conditionals that may exist
Library			
Counseling	M 4. M 6. B-LS.4 B-SS.2	M 4. M 6. B-LS.4 B-SS.2	M 4 M 6. B-LS.4 B-SS.2
	 Example Connection Activity: Students can create a presentation that demonstrates an understanding of careers, post-secondary training, and education, highlighting the sequence of steps and any events, loops, or conditionals that may exist 	 Example Connection Activity: Students can create a presentation that demonstrates an understanding of careers, post- secondary training, and education, highlighting the sequence of steps and any events, loops, or conditionals that may exist 	 Example Connection Activity: Students can create a presentation that demonstrates an understanding of careers, post-secondary training, and education, highlighting the sequence of steps and any events, loops, or conditionals that may exist

AP.1B.4 AP.1B.4 Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

Decomposition is the act of breaking down tasks into simpler tasks.

AP.1B.4a Students should be able to break down problems into smaller, simpler tasks.

Overarching Goal	Decompose problems

LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
I can break down problems into	I can break down problems into	I can break down problems into	
smaller, simpler tasks. (AP.1B.4a)	smaller, simpler tasks. (AP.1B.4a)	smaller, simpler tasks. (AP.1B.4a)	
 Identify ways a large task could be 	 Identify ways a large task could be 	 Identify ways a large task could be 	
broken into smaller tasks	broken into smaller tasks	broken into smaller tasks	
Break down tasks into smaller	Break down tasks into smaller	Break down tasks into smaller	
tasks	tasks	tasks	

AP.1B.4 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	RL.3.2-5	RL.4.2-5	RL.5.2-5
	 Example Connection Activity: Students can create an animation by separating a story into different scenes, selecting a background, placing characters, and programming actions for each scene 	 Example Connection Activity: Students can create an animation by separating a story into different scenes, selecting a background, placing characters, and programming actions for each scene 	 Example Connection Activity: Students can create an animation by separating a story into different scenes, selecting a background, placing characters, and programming actions for each scene
Math		4.NF.3 b	
		Example Connection Activity:	
		• Students can decompose a fraction	
		same denominator	
Science		L.4.2.2	
		Example Connection Activity:	
		• Students can be grouped to work	
		together to create a presentation of the life cycle of an organism, other	
		than human, where each student	
		works on a different phase in the	
		present the cycle as a whole	

Social Studies			
Library			
Counseling	M 4	M 4	M 4
	M 6	M 6	M 6
	B-LS.4	B-LS.4	B-LS.4
	B-SS.2	B-SS.2	B-SS.2
	 Students can create a presentation	 Students can create a presentation	 Students can create a presentation
	that demonstrates their	that demonstrates their	that demonstrates their
	understanding of careers, post-	understanding of careers, post-	understanding of careers, post-
	secondary training, and education Students can create a flowchart to	secondary training, and education Students can create a flowchart to	secondary training, and education Students can create a flowchart to
	illustrate the steps to starting a	illustrate the steps to starting a	illustrate the steps to starting a
	career Students can discuss the different	career Students can discuss the different	career Students can discuss the different
	pathways to start a career	pathways to start a career	pathways to start a career

AP.1B.5 AP.1B.5 Modify, remix, or incorporate portions of an existing program into one's own work to develop something new or add more advanced features.

Programs can be broken down into smaller parts which can be incorporated into new or existing programs.

AP.1B.5a Students should be able to modify and/or reuse portions of an existing program in their own work to create something new.

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LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
 I can reuse portions of an existing program in my own work to create something new. (AP.1B.5, AP.1B.5a) Identify portions of an existing code that complete a desired task Copy and reuse portions of an existing program to create something new or add more advanced features 	 I can reuse portions of an existing program in my own work to create something new. (AP.1B.5, AP.1B.5a) Identify portions of an existing code that complete a desired task Copy and reuse portions of an existing program to create something new or add more advanced features 	 I can reuse portions of an existing program in my own work to create something new. (AP.1B.5, AP.1B.5a) Identify portions of an existing code that complete a desired task Copy and reuse portions of an existing program to create something new or add more advanced features 	
	 I can modify portions of an existing program and incorporate it into my own work to create something new. (AP.1B.5, AP.1B.5a) Identify portions of an existing code that complete a desired task Copy and make basic edits to portions of an existing program to 	 I can modify portions of an existing program and incorporate it into my own work to create something new. (AP.1B.5, AP.1B.5a) Identify portions of an existing code that complete a desired task 	

AP.1B.5 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	W.3.3 a-d RL.3.3 RL.3.6	W.4.3 a-d RL.4.3 RL.4.6	W.5.3 a-d RL.5.3 RL.5.6
	 Example Activity: Students can use a digital graphic organizer, storyboard, or writing program to create an alternate ending, remix, or add another scene to a story they have read using details from the text 	 Example Activity: Students can use a digital graphic organizer, storyboard, or writing program to create an alternate ending, remix, or add another scene to a story they have read using details from the text 	 Example Activity: Students can use a digital graphic organizer, storyboard, or writing program to create an alternate ending, remix, or add another scene to a story they have read using details from the text
Math			
Science			
Social Studies			
Library			

Counseling	B-SS.2	B-SS.2	B-SS.2
	B-SS.6	B-SS.6	B-SS.6
	B-SS.9	B-SS.9	B-SS.9
	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually can reflect on their experiences through a written essay Students can continue to revise their work 	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually can reflect on their experiences through a written essay Students can continue to revise their work 	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually can reflect on their experiences through a written essay Students can continue to revise their work

AP.1B.6 AP.1B.6 Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

Planning is an important part of the iterative process of program development.

AP.1B.6a Students outline key features, time and resource constraints, and user expectations

AP.1B.6b Students should document the plan as, for example, a storyboard, flowchart, pseudocode, or story map.

Overarching Goal	Plan and document the development of a program
Overarching Goal	Plan and document the development of a program

LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
I can consider user preferences and	I can consider user preferences and	I can consider user preferences and	
others' perspectives to plan a	others' perspectives to plan a	other' perspectives to plan a program.	
program. (AP.1B.6)	program. (AP.1B.6)	(AP.1B.6)	
 Identify various users of the 	 Identify various users of the 	 Identify various users of the 	
program	program	program	
• Survey potential users on	 Survey potential users on 	 Survey potential users on 	
preferences and expectations for	expectations for programs	expectations for programs	
programs	Analyze results to identify	Analyze results to identify	
Analyze results to identify	program needs	program needs	
program needs			
I can outline key features and user	I can outline key features, time and	I can outline key features, time and	
expectations. (AP.1B.6a)	resource constraints, and user	resource constraints, and user	
Outline key features of the	expectations. (AP.1B.6a)	expectations. (AP.1B.6a)	
program	Outline key features of the	Outline key features of the	
	program	program	

• Outline user expectations for the program (e.g., users score points to win a game, etc.)	 Outline user expectations for the program (e.g., users score points to win a game, etc.) Identify time and resource constraints for the program (e.g., deadlines, access to materials and equipment, etc.) 	 Outline user expectations for the program (e.g., users score points to win a game, etc.) Identify time and resource constraints for the program (e.g., deadlines, access to materials and equipment, etc.)
I can create and document the plan	I can create and document the plan	I can create and document the plan
using text and visuals. (AP.1B.6b)	using text and visuals. (AP.1B.6b)	using text and visuals. (AP.1B.6b)
Create a plan based on feedback	Create a plan based on feedback	Create a plan based on feedback
from users	from users and time and resource	from users and time and resource
 Document the plan with text and 	constraints	constraints
visuals (e.g., storyboard,	 Document the plan with text and 	 Document the plan with text and
flowchart, or story map)	visuals (e.g., storyboard,	visuals (e.g., storyboard, flowchart,
	flowchart, or story map)	or story map)

AP.1B.6 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	 SL.3.4 W.3.7-8 RL.3.3 Example Connection Activities: Students can prewrite/brainstorm the topic by conducting research and gathering information from print and digital Students can use a storyboard, flowcharts, or story map to 	 SL.4.4 W.4.7-8 RL.4.3 Example Connection Activities: Students can prewrite/brainstorm the topic by conducting research and gathering information from print and digital sources Students can use a storyboard, flowcharts, or story map to 	 SL.5.4 W.5.7-8 RL.5.3 Example Connection Activities: Students can prewrite/brainstorm the topic by conducting research and gathering information from print and digital sources Students can use a storyboard, flowcharts, or story map to
Math	document the events in the story SMP.5 3.NBT.2 Example Connection Activity: • Students can use the process for choosing the best strategy for adding and subtracting, and connect it to the different needs and preferences for users (can be done with number talks)	document the events in the story SMP.5 4.NBT.6 Example Connection Activities: • Facilitate a discussion on choosing the best strategy to perform multi- digit arithmetic and the different needs and preferences students may have for these strategies	document the events in the story SMP.5 6.NBT.6 Example Connection Activities: • Facilitate a discussion on choosing the best strategy to perform multi- digit arithmetic and the different needs and preferences students may have for these strategies

Science	Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions	Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions	Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions
	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product
Social Studies			
Library			

Counseling	B-SS.2	B-SS.2	B-SS.2
	B-SS.6	B-SS.6	B-SS.6
	B-SS.9	B-SS.9	B-SS.9
	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually can reflect on their experiences through a written essay Students can continue to revise their work 	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually can reflect on their experiences through a written essay Students can continue to revise their work 	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually can reflect on their experiences through a written essay Students can continue to revise their work

AP.1B.7 Observe intellectual property rights and give appropriate attribution when creating or remixing programs. AP.1B.7

Intellectual property rights can vary by country, but copyright laws give the creator of a work a set of rights that prevents others from copying the work and using it in ways that they may not like.

AP.1B.7a Students should identify instances of remixing when ideas are borrowed and iterated upon, and credit the original creator.

AP.1B.7b Students should also consider common licenses that place limitations or restrictions on the use of computational artifacts, such as images and music downloaded from the internet.

Overarching Goal	verarching Goal Observe intellectual property rights and give proper attribution			
LEARNING TARGETS				
THIRD GR/	ADE	FOURTH GRADE	FIFTH GRADE	
 I can observe intellecturights when using other (AP.1B.7, AP.1B.7b) Define intellecturing rights Define copyright With guidance and investigate communicenses With guidance and determine if artificilimitations or restribused on copyright 	cual property er's work. al property t license nd support, mon copyright nd support, facts have strictions for use ght licenses	 I can observe intellectual property rights when using other's work. (AP.1B.7, AP.1B.7b) Define intellectual property rights Define copyright license With guidance and support, investigate common copyright licenses With guidance and support, determine if artifacts have limitations or restrictions for use based on copyright licenses 	 I can observe intellectual property rights when using other's work. (AP.1B.7, AP.1B.7b) Define intellectual property rights Define copyright license Investigate common copyright licenses Determine if artifacts have limitations or restrictions for use based on copyright licenses 	

I can identify when I use other's work and credit the original creator.	I can identify when I use or edit other's work and credit the original	I can identify when I use or remix other's work and credit the original
 (AP.1B.7, AP.1B.7a) Identify other's ideas or work that I have used in my own work Provide appropriate attribution to the original creator of an idea or work 	 creator. (AP.1B.7, AP.1B.7a) Identify other's ideas or work that I have used in my own work Identify other's ideas or work that I have made basic edits to and used in my own work 	 creator. (AP.1B.7, AP.1B.7a) Identify other's ideas or work that I have used in my own work Identify other's ideas or work that I have remixed (added, removed, or changed) and used in my own
	 Provide appropriate attribution to the original creator of an idea or work 	 Work Provide appropriate attribution to the original creator of an idea or work

AP.1B.7 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	RL/RI.3.1 W.3.8	RL/RI.4.1 W.4.8	RL/RI.5.1 W.5.8
	 Example Connection Activities: Students can give credit for sources in their writing and/or orally during presentations Students can complete a graphic organizer to cite evidence when reading and discussing key details, central messages, and characters in a text 	 Example Connection Activities: Students can give credit for sources in their writing and/or orally during presentations Students can complete a graphic organizer to cite evidence when reading and discussing key details, central messages, and characters in a text 	 Example Connection Activities: Students can give credit for sources in their writing and/or orally during presentations Students can complete a graphic organizer to cite evidence when reading and discussing key details, central messages, and characters in a text

Math	3.MD.8	4.MD.3	5.MD.5
	3.G.1	4.G.1-2	5.G.3-4
	 Example Connection Activities: Students can work together to solve real-world mathematical problems or find examples of geometric shapes in everyday objects Students can create presentations that represent their findings, making sure to follow all copyright laws 	 Example Connection Activities: Students can work together to solve real-world mathematical problems or recognize/classify everyday objects as 2D figures Students can create presentations that represent their findings, making sure to follow all copyright laws 	 Example Connection Activities: Students can work together to solve real-world mathematical problems or recognize/classify everyday objects as 2D figures Students can create presentations that represent their findings, making sure to follow all copyright laws

Science	 Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product 	 Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product 	 Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product
Social Studies	 CR.3.2 Example Connection Activity: Students will consider the licenses of digital copies of cultural artifacts 		

Library	DIG.PR.3.3	DIG.PR.3.3	DIG.PR.3.3
	 Example Connection Activities: (See Folklores, Fairy Tales, and Poems in the 2-3 Library Lesson Plans) Read Have You Heard About Lady Bird? by Marilyn Singer and have students discuss the differences between folklore, fairy tales, and poems Small groups will design and create their books using digital book maker platforms Students will learn about what information should and should not be shared when logging into a digital platform Students will use the internet to find and save images to illustrate books Students will learn how to add citations to give appropriate attributions to used images 	 Example Connection Activities: (See Reporting the News in the 4-5 Library Lesson Plans) Students will use periodicals (e.g., newspapers and magazines) to learn the different elements Students will use Explora (MAGNOLIA) or print periodicals to write a current event summary on a technological breakthrough, including the cause and effect of the breakthrough Students can add images from the current event to the summary with appropriate citations 	 Example Connection Activities: (See American Revolutionary War in the 4-5 Library Lesson Plans) Students will use Explora (MAGNOLIA) to research the American Revolutionary War Students will use the gathered information to complete either a printed or digital graphic organizer which will include citations Students will use the graphic organizer to write a summary of the cause and effect of the American Revolutionary War
Counseling			

AP.1B.8 AP.1B.8 Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended.

As students develop programs, they should continuously test those programs to see that they do what was expected and fix (debug) any errors.

AP.1B.8a Students should be able to identify and debug simple errors in programs they create and in programs created by others.

Overarching Goal Test and debug program errors
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LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
I can identify and debug simple errors	I can identify and debug simple errors	I can identify and debug simple errors	
in my own code. (AP.1B.8)	in my own code. (AP.1B.8)	in my own code. (AP.1B.8)	
 Test programs after development 	 Test programs after development 	 Test programs after development 	
 Review code and identify simple 	 Review code and identify simple 	 Review code and identify simple 	
errors	errors	errors	
Correct any errors identified in the	Correct any errors identified in the	Correct any errors identified in	
review	review	the review	
	I can identify and debug simple errors	I can identify and debug simple errors	
	in programs created by others.	in programs created by others.	
	(AP.1B.8a)	(AP.1B.8a)	
	• Test programs created by others	 Test programs created by others 	
	Review code and identify simple	Review code and identify simple	
	errors in programs created by	errors in programs created by	
	others	others	
	Correct any errors found in testing	Correct any errors found in	
		testing	

AP.1B.8 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	W.3.5 L.3.1-3	W.4.5 L.3.4-3	W.5.5 L.5.1-3
	 Example Connection Activity: Students can strengthen their writing as needed by planning, revising, and editing 	 Example Connection Activity: Students can strengthen their writing as needed by planning, revising, and editing 	 Example Connection Activity: Students can strengthen their writing as needed by planning, revising, and editing
Math	 SMP.3 Example Connection Activity: Students practice finding and correcting errors in their work 	 SMP.3 Example Connection Activity: Students practice finding and correcting errors in their work 	 SMP.3 Example Connection Activity: Students practice finding and correcting errors in their work

Science	Science & Engineering Practices:	Science & Engineering Practices:	Science & Engineering Practices:
	Asking Questions and Defining	Asking Questions and Defining	Asking Questions and Defining
	Problems; Develop and Use Models;	Problems; Develop and Use Models;	Problems; Develop and Use Models;
	Constructing Explanations and	Constructing Explanations and	Constructing Explanations and
	Designing Solutions	Designing Solutions	Designing Solutions
	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students test, review, and make changes to the designed solution Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and present a finished product to the class 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students test, review, and make changes to the designed solution Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and present a finished product to the class 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students test, review, and make changes to the designed solution Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and present a finished product to the class
Social Studies	H.3.1	CR.4.1	H.5.4
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	 Example Connection Activities: Students can work together to examine problems of different forms of government Students can create presentations that represent their findings, making sure that copyright laws are followed, dividing work appropriately, and reviewing and making changes to the project to present a finished product 	 Example Connection Activities: Students can work together to examine problems that led to the Civil Rights Era Students can create presentations that represent their findings, making sure that copyright laws are followed, dividing work appropriately, and reviewing and making changes to the project to present a finished product 	 Example Connection Activities: Students can work together to examine problems that led to the American Revolution Students can create presentations that represent their findings, making sure that copyright laws are followed, dividing work appropriately, and reviewing and making changes to the project to present a finished product
Library			
Counseling			

AP.1B.9 AP.1B.9 Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development.

Collaborative computing is the process of performing a computational task by working in pairs or on teams. Because it involves asking for the contributions and feedback of others, effective collaboration can lead to better outcomes than working independently.

AP.1B.9a Students should take turns in different roles during program development, such as note taker, facilitator, program tester, or "driver" of the computer.

LEARNING TARGETS				
THIRD GRADE	FOURTH GRADE	FIFTH GRADE		
I can take on varying roles during	I can take on varying roles during	I can take on varying roles during		
program development. (AP.1B.9,	program development. (AP.1B.9,	program development. (AP.1B.9,		
AP.1B.9a)	AP.1B.9a)	AP.1B.9a)		
Discuss the process of	Discuss the process of	Discuss the process of		
collaborative computing	collaborative computing	collaborative computing		
• With guidance and support,	 Identify the responsibilities and 	 Identify the responsibilities and 		
identify the responsibilities and	values of different roles in various	values of different roles in various		
values of different roles in various	phases of program development	phases of program development		
phases of program development	• With guidance and support, take	• With guidance and support, take		
• With guidance and support, take	on different roles (e.g., note taker,	on different roles (e.g., note		
on different roles (e.g., note taker,	facilitator, program tester, or	taker, facilitator, program tester,		
facilitator, program tester, or	'driver' of the computer) when	or 'driver' of the computer) when		
'driver' of the computer) when	collaborating during program	collaborating during program		
collaborating during program	development	development		
development				

Overarching Goal	Take on various roles during program development
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AP.1B.9 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	SL.3.1a-d SL.3.2-3	SL.4.1a-d SL.4.2-3	SL.5.1a-d SL.5.2-3
	 Example Connection Activity: Students can collaborate on projects, share writing, participate in discussions, and perform different roles such as note taker, facilitator, etc. 	 Example Connection Activity: Students can collaborate on projects, share writing, participate in discussions, and perform different roles such as note taker, facilitator, etc. 	 Example Connection Activity: Students can collaborate on projects, share writing, participate in discussions, and perform different roles such as note taker, facilitator, etc.
Math	 3.MD.8 3.G.1 Example Connection Activities: Students can work together to solve real-world mathematical problems or find examples of geometric shapes in everyday objects Students can create presentations that represent their findings, making sure that copyright laws are followed, dividing work appropriately, and reviewing and making changes to the project to present a finished product 	 4.MD.3 4.G.1-2 Example Connection Activities: Students can work together to solve real-world mathematical problems or find examples of geometric shapes in everyday objects Students can create presentations that represent their findings, making sure that copyright laws are followed, dividing work appropriately, and reviewing and making changes to the project to present a finished product 	 5.MD.5 5.G.3-4 Example Connection Activities: Students can work together to solve real-world mathematical problems or find examples of geometric shapes in everyday objects Students can create presentations that represent their findings, making sure that copyright laws are followed, dividing work appropriately, and reviewing and making changes to the project to present a finished product

Science	Science & Engineering Practices:	Science & Engineering Practices:	Science & Engineering Practices:
	Asking Questions and Defining	Asking Questions and Defining	Asking Questions and Defining
	Problems; Develop and Use Models;	Problems; Develop and Use Models;	Problems; Develop and Use Models;
	Constructing Explanations and	Constructing Explanations and	Constructing Explanations and
	Designing Solutions	Designing Solutions	Designing Solutions
	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product

Social Studies	CR.3.3	CR.4.1	CR.5.2
	H.3.1	H.4.6	H.5.4
	Example Connection Activities:	Example Connection Activities:	Example Connection Activities:
	 Students can work together to 	 Students can work together to 	 Students can work together to
	examine civil liberties or different	examine events of the Civil Rights Era	examine traditions of different
	forms of government	or Mississippi Native American	cultures or events of the American
	Students can create presentations	Cultures	Revolution
	that represent their findings,	 Students can create presentations 	 Students can create presentations
	making sure that copyright laws are	that represent their findings, making	that represent their findings, making
	followed, dividing work	sure that copyright laws are	sure that copyright laws are
	appropriately, and reviewing and	followed, dividing work	followed, dividing work
	making changes to the project to	appropriately, and reviewing and	appropriately, and reviewing and
	present a finished product	making changes to the project to	making changes to the project to
		present a finished product	present a finished product
Library			

Counseling	B-SS.2	B-SS.2	B-SS.2
	B-SS.6	B-SS.6	B-SS.6
	B-SS.9	B-SS.9	B-SS.9
	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually can reflect on their experiences through a written essay Students can continue to revise their work 	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually can reflect on their experiences through a written essay Students can continue to revise their work 	 Example Connection Activities: Students can show that they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and individually can reflect on their experiences through a written essay Students can continue to revise their work

AP.1B.10 AP.1B.10 Describe choices made during program development using code comments, presentations, and demonstrations.

People communicate about their code to help others understand and use their programs. Another purpose of communicating one's design choices is to show an understanding of one's work.

AP.1B.10a Students should explain code choices using comments within the code, presentations, and demonstrations.

Overarching Goal	Explain coding decisions		
LEARNING TARGETS			

LEARNING TARGETS				
THIRD GRADE	FOURTH GRADE	FIFTH GRADE		
I can explain code choices. (AP.1B.10,	I can explain code choices. (AP.1B.10,	I can explain code choices. (AP.1B.10,		
AP.1B.10a)	AP.1B.10a)	AP.1B.10a)		
Communicate coding choices	Communicate coding choices	Communicate coding choices		
made during development by	made during development by	made during development by		
using code comments (short notes	using code comments (short notes	using code comments (short		
to explain how the program works	to explain how the program works	notes to explain how the program		
and the intention behind the	and the intention behind the	works and the intention behind		
code) within the code	code) within the code	the code) within the code		
	 Present coding choices made 	 Present coding choices made 		
	during program development	during program development		
	Demonstrate how an individual	 Demonstrate how coding 		
	coding decision led to an action	decisions impact the final		
	within a program	program developed		

AP.1B.10 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	SL.3.5	SL.4.5	SL.5.5
	 Example Connection Activity: Students can participate in whole class discussions, turn and talks, and group discussions to talk and write about topics and readings 	 Example Connection Activity: Students can participate in whole class discussions, turn and talks, and group discussions to talk and write about topics and readings 	 Example Connection Activity: Students can participate in whole class discussions, turn and talks, and group discussions to talk and write about topics and readings
Math	SMP.3 3.OA.5	SMP.3 4.OA.3	SMP.3 5.NBT.6-7
	3.OA.7-8 3.NBT 2-3	4.NBT.5-6	Example Connection Activity:
		Example Connection Activity:	Students can explain why they
	Example Connection Activity:	• Students can explain why they	chose to employ certain
	 Students can explain why they chose to employ certain mathematical strategies when solving problems 	chose to employ certain mathematical strategies when solving problems	mathematical strategies when solving problems

Science	Science & Engineering Practices:	Science & Engineering Practices:	Science & Engineering Practices:
	Asking Questions and Defining	Asking Questions and Defining	Asking Questions and Defining
	Problems; Develop and Use Models;	Problems; Develop and Use Models;	Problems; Develop and Use Models;
	Constructing Explanations and	Constructing Explanations and	Constructing Explanations and
	Designing Solutions	Designing Solutions	Designing Solutions
	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines and explain why they made the choices they made Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines and explain why they made the choices they made Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines and explain why they made the choices they made Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product

Social Studies	CR.3.3 H.3.1	CR.4.1 H.4.6	CR.5.2 H.5.4
	 H.3.1 Example Connection Activities: Students can work together to examine civil liberties or different forms of government Students will work together to create an outline of resources and project deadlines and explain why they made the choices they made Students can create presentations that represent their findings, making sure that copyright laws are followed, dividing work appropriately, and reviewing and making changes to the project to present a finished product 	 H.4.6 Example Connection Activities: Students can work together to examine events of the Civil Rights Era or Mississippi Native American Cultures Students will work together to create an outline of resources and project deadlines and explain why they made the choices they made Students can create presentations that represent their findings, making sure that copyright laws are followed, dividing work appropriately, and reviewing and making changes to the project to present a finished product 	 H.5.4 Example Connection Activities: Students can work together to examine traditions of different cultures or events of the American Revolution Students will work together to create an outline of resources and project deadlines and explain why they made the choices they made Students can create presentations that represent their findings, making sure that copyright laws are followed, dividing work appropriately, and reviewing and making changes to the project to present a finished product
Library			•

Counseling	B-SS.2	B-SS.2	B-SS.2
	B-SS.6	B-SS.6	B-SS.6
	B-SS.9	B-SS.9	B-SS.9
	 Example Connection Activities: Students can show they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and, individually, can reflect on their experiences through a written essay Students can explain their process to their classmates 	 Example Connection Activities: Students can show they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and, individually, can reflect on their experiences through a written essay Students can explain their process to their classmates 	 Example Connection Activities: Students can show they can work together with others to reach a common goal Students can brainstorm the personal and ethical skills necessary to work with diverse groups of people Students can work together in a diverse group to accomplish a goal and, individually, can reflect on their experiences through a written essay Students can explain their process to their classmates



CONCEPT | IMPACTS OF COMPUTING

Computing affects many aspects of the world in both positive and negative ways at local, national, and global levels. Individuals and communities influence computing through their behaviors and cultural and social interactions, and in turn, computing influences new cultural practices. An informed and responsible person should understand the social implications of the digital world, including equity and access to computing.

IC.1B.1 Discuss computing technologies that have changed the world and express how those technologies influence and are influenced by cultural practices.

New computing technology is created, and existing technologies are modified for many reasons, including to increase their benefits, decrease their risks, and meet societal needs.

IC.1B.1a Students, with guidance from their teacher, should discuss topics that relate to the history of technology and the changes in the world due to technology.

Overarching Goal	Overarching Goal Discuss how the use of technology has changed the world			
LEARNING TARGETS				
THIRD GRADE FOURTH GRADE FIFTH GRADE			FIFTH GRADE	
I can discuss how the technology has chang (IC.1B.1)	use of ed the world.	I can discuss how the use of technology has changed the world. (IC.1B.1)	I can discuss how the use of technology has changed the world. (IC.1B.1)	

 Discuss how technology is used in various aspects of everyday life With guidance and support, describe the negative and positive effects of using technology to complete tasks With guidance and support, create a timeline of technological advancements throughout history 	 Discuss how technology is used in various aspects of everyday life Describe the negative and positive effects of using technology to complete tasks With guidance and support, explore technological advancements throughout history 	 Discuss how technology is used in various aspects of everyday life Describe the negative and positive effects of using technology to complete tasks With guidance and support, explore technological advancements throughout history
	 I can discuss the relationship between technology and societies. (IC.1B.1a) With guidance and support, identify cultural practices that have changed due to technological advancements With guidance and support, explain how cultural practices influence how we use technology 	 I can discuss the relationship between technology and societies. (IC.1B.1a) Identify cultural practices that have changed due to technological advancements Explain how cultural practices influence how we use technology With guidance and support, discuss technologies that were created as a societal necessity With guidance and support, brainstorm societal needs and the future technologies that could support those needs

IC.1B.1 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	RI.3.3	RI.4.3	RI.5.3
	RI.3.9	RI.4.9	RI.5.9
	SL.3.1a-d	SL.4.1a-d	SL.5.1a-d
	Example Connection Activity:	Example Connection Activity:	Example Connection Activity:
	 Students can read and discuss 	 Students can read and discuss 	 Students can read and discuss
	articles about social media and	articles about social media and	articles about social media and
	technology and how it has	technology and how it has	technology and how it has
	impacted/changed the world	impacted/changed the world	impacted/changed the world
Math			
Science	Example Connection Activity:	Example Connection Activity:	Example Connection Activity:
	 Students can complete a research 	 Students can complete a research 	 Students can complete a research
	project on how technology has	project on how technology has	project on how technology has
	advanced the scientific studies (e.g.,	advanced the scientific studies (e.g.,	advanced the scientific studies (e.g.,
	the study of astronomy), including	the study of astronomy), including	the study of astronomy), including
	information on the history of	information on the history of	information on the history of
	products for scientific study, while	products for scientific study, while	products for scientific study, while
	relating diverse perspectives on the	relating diverse perspectives on the	relating diverse perspectives on the
	topic and adhering to copyright laws	topic and adhering to copyright laws	topic and adhering to copyright laws

Social Studies	 G.3.3 CR.3.1 Example Connection Activities: Students can discuss how technology has influenced the physical environment Students can discuss how technology has changed/impacted voting 		
Library			
Counseling	M 4	M 4	M 4
	B-LS.7	B-LS.7	B-LS.7
	Example Connection Activity:	Example Connection Activity:	Example Connection Activity:
	 Students can prepare a presentation	• Students can prepare a presentation	 Students can prepare a presentation
	on various technology-related	on various technology-related	on-various technology related
	careers and include a timeline that	careers and include a timeline that	careers and include a timeline that
	illustrates the historical context	illustrates the historical context	illustrates the historical context

IC.1B.2 Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users.

The development and modification of computing technology are driven by people's needs and wants and can affect groups differently. Anticipating the needs and wants of diverse end users requires students to purposefully consider potential perspectives of users with different backgrounds, ability levels, points of view, and disabilities.

Consider user experience from diverse needs and perspectives

IC.1B.2a Students will demonstrate an understanding of diversity of ability and interests by developing artifacts and tools that use different methods of communication and/or appeal to different users.

LEARNING TARGETS				
THIRD GRADE	FOURTH GRADE FIFTH GRADE			
I can identify various types of user differences that should be considered when creating digital resources and	I can identify various types of user differences that should be considered when creating digital resources and	I can identify various types of user differences that should be considered when creating digital resources and		
 artifacts. (IC.1B.2) Define user needs (goal or task that needs to be completed) and preferences (customizable settings) Define accessibility (technology that can be used by people with a wide range of abilities and disabilities) Brainstorm ways to meet needs and preferences in technology 	 artifacts. (IC.1B.2) Define user needs (goal or task that needs to be completed) and preferences (customizable settings) Define accessibility (technology that can be used by people with a wide range of abilities and disabilities) Brainstorm ways to meet needs and preferences in technology 	 artifacts. (IC.1B.2) Define user needs (goal or task that needs to be completed) and preferences (customizable settings) Define accessibility (technology that can be used by people with a wide range of abilities and disabilities) Brainstorm ways to meet needs and preferences in technology 		

August 2022

Elementary Computer Science: Level 1B Grades 3-5 | Standards Deconstruction and Content Area Connections

Overarching Goal

 Discuss ways user preferences might impact the design of digital artifacts Brainstorm ways the diversity of user ability can be accommodated in the design of digital artifacts 	 Discuss ways user preferences might impact the design of digital artifacts Brainstorm ways the diversity of user ability can be accommodated in the design of digital artifacts 	 Discuss ways user preferences might impact the design of digital artifacts Brainstorm ways the diversity of user ability can be accommodated in the design of digital artifacts
	 I can develop digital artifacts that reflect diverse user preferences. (IC.1B.2a) Create a digital artifact that might be appealing to users with different preferences Explain the design choices made to appeal to users with different preferences 	 I can develop digital artifacts that reflect diverse user preferences. (IC.1B.2a) Create a digital artifact that might be appealing to users with different preferences Explain the design choices made to appeal to users with different preferences
		 I can develop digital artifacts that accommodate the needs of users with diverse abilities. (IC.1B.2a) Create a digital artifact that is accessible to people of varying ability levels Explain the design choices made to ensure accessibility

IC.1B.2 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	SL.3.4-6	SL.4.4-6	SL.5.4-6
	Example Connection Activity:	Example Connection Activity:	Example Connection Activity:
	 Students can use a variety of visual 	 Students can use a variety of visual 	 Students can use a variety of visual
	and audio presentation apps or	and audio presentation apps or	and audio presentation apps or
	programs to demonstrate	programs to demonstrate	programs to demonstrate
	understanding of a topic	understanding of a topic	understanding of a topic
Math			
Science			
Social Studies			
Library			
Counseling	B-SS.1	B-SS.1	B-SS.1
	Example Connection Activities:	Example Connection Activities:	Example Connection Activities:
	 Students can complete a checklist 	 Students can complete a checklist 	 Students can complete a checklist
	that identifies their needs and	that identifies their needs and	that identifies their needs and
	preferences for working conditions	preferences for working conditions	preferences for working conditions
	 This checklist can be used as an 	 This checklist can be used as an 	 This checklist can be used as an
	exploration guide throughout the	exploration guide throughout the	exploration guide throughout the
	current year and saved for	current year and saved for	current year and saved for
	comparison/assessment next year	comparison/assessment next year	comparison/assessment next year

IC.1B.3 IC.1B.3 Seek diverse perspectives for the purpose of improving computational artifacts.

Computing provides the possibility for collaboration and sharing of ideas and allows the benefit of diverse perspectives.

IC.1B.3a Students will collaborate and receive feedback from others.

LEARNING TARGETS				
THIRD GRADE	FOURTH GRADE	FIFTH GRADE		
 I can identify and obtain feedback from diverse groups. (IC.1B.3, IC.1B.3a) List sources of diverse feedback (e.g., peers, adults, experts in the field, etc.) Discuss the benefits of seeking multiple sources of feedback Obtain feedback (e.g., surveys, interviews, etc.) 	 I can identify and assess various ways of receiving feedback. (IC.1B.3, IC.1B.3a) List sources of diverse feedback (e.g., peers, adults, experts in the field, etc.) Discuss the benefits of seeking multiple sources of feedback Obtain feedback (e.g., surveys, interviews, etc.) 	 I can identify and assess various ways of receiving feedback. (IC.1B.3, IC.1B.3a) List sources of diverse feedback (e.g., peers, adults, experts in the field, etc.) Discuss the benefits of seeking multiple sources of feedback Obtain feedback (e.g., surveys, interviews, etc.) 		
 I can utilize feedback to improve my work. (IC.1B.3, IC.1B.3a) Analyze feedback Create specific steps for improvement using feedback Apply feedback Test changes applied to ensure improvement 	 I can utilize feedback to improve my work. (IC.1B.3, IC.1B.3a) Analyze feedback Create specific steps for improvement using feedback Apply feedback Test changes applied to ensure improvement 	 I can utilize feedback to improve my work. (IC.1B.3, IC.1B.3a) Analyze feedback Create specific steps for improvement using feedback Apply feedback Test changes applied to ensure improvement 		

IC.1B.3 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	SL.3.1a-d SL.3.3	SL.4.1a-d SL.4.3	SL.5.1a-d SL.5.3
	 Example Connection Activity: Students can use a variety of online collaborative apps or programs to collaborate and provide feedback to others 	 Example Connection Activity: Students can use a variety of online collaborative apps or programs to collaborate and provide feedback to others 	 Example Connection Activity Students can use a variety of online collaborative apps or programs to collaborate and provide feedback to others
Math			

Science S	Science & Engineering Practices:	Science & Engineering Practices:	Science & Engineering Practices:
	Asking Questions and Defining	Asking Questions and Defining	Asking Questions and Defining
	Problems; Develop and Use Models;	Problems; Develop and Use Models;	Problems; Develop and Use Models;
	Constructing Explanations and	Constructing Explanations and	Constructing Explanations and
	Designing Solutions	Designing Solutions	Designing Solutions
	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product Students obtain feedback on their 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product Students obtain feedback on their 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product Students obtain feedback on their

Social Studies	G.3.3		Cl.5.2
	 Example Connection Activities: Students can work together to create presentations detailing the geographic impact of using oil and various energy sources in the 21st century and receive feedback from others 		 Example Connection Activities: Students listen to thoughts/feedback from others and demonstrate respect for the rights of others during classroom debates
Library	DIG.CO.1.1-4	DIG.CO.1.1-4	DIG.CO.1.1-4
	 Example Connection Activities: (See Finding Innovative Solutions in the 2-3 Library Lesson Plans) Read Farmer Will Allen by Jacqueline Briggs Martin and have students discuss different inventors or innovators Students will use Explora (MAGNOLIA) to research vermicomposting Students will use the gathered information to design and build their own indoor composting bins Students will present their bins to receive feedback which will allow for self-reflection 	 Example Connection Activities: (See Creating Bibliographies in the 4-5 Library Lesson Plans) Students will use Explora (MAGNOLIA) to research their assigned animal Students will use the gathered information to complete a printed or digital Frayer model or another graphic organizer Students will create a nonfiction book list based on their animal After checking out and reading books from the curated list, students will leave reviews on the library management system 	 Example Connection Activities: (See Adopt a Genre in the 4-5 Library Lesson Plans) Students will demonstrate an understanding of the curation through creating a book display based on a pre-determined genre Students will use the library's management system to create the initial list of books to display Students will create a short video showcasing the materials curated in the display Students will analyze circulation data to gain feedback on the book display

Counseling	M 4 B-LS.7	M 4 B-LS.7	M 4 B-LS.7
	Example Connection Activity:	Example Connection Activity:	Example Connection Activity:
	 Students can work in groups to 	 Students can work in groups to 	 Students can work in groups to
	prepare a presentation on various	prepare a presentation on various	prepare a presentation on various
	technology related careers and	technology related careers and	technology related careers and
	include a timeline that illustrates the	include a timeline that illustrates the	include a timeline that illustrates the
	historical context and receive	historical context and receive	historical context and receive
	feedback from others	feedback from others	feedback from others

IC.1B.4 Use public domain or creative commons media and refrain from copying or using material created by others without permission.

Ethical complications arise from the opportunities provided by computing. The ease of sending and receiving copies of media on the internet such as video, photos, and music, creates the opportunity for unauthorized use, such as online piracy, and disregard of copyrights.

IC.1B.4a Students should consider the licenses on computational artifacts that they wish to use.

LEARNING TARGETS			
THIRD GRADE	FOURTH GRADE	FIFTH GRADE	
I can distinguish which sources of	I can distinguish which sources of	I can distinguish which sources of	
information and media are free to	information and media are free to	information and media are free to	
use. (IC.1B.4)	use. (IC.1B.4)	use. (IC.1B.4)	
Define public domain	Define public domain and	• Define public domain and creative	
Define creative commons media	creative commons	commons	
• Describe the conditions of use for	• Describe the conditions of use for	• Describe the conditions of use for	
both public domain and creative	both public domain and creative	both public domain and creative	
commons resources	commons resources.	commons resources.	
	 Explain the impact of using 	 Explain the impact of using 	
	materials without permission	materials without permission	
I can identify examples of intellectual	I can identify examples of intellectual	I can identify examples of intellectual	
property that can only be used under	property that can only be used under	property that can only be used under	
certain circumstances. (IC.1B.4a)	certain circumstances. (IC.1B.4a)	certain circumstances. (IC.1B.4a)	
Discern information or media	Discern information or media	Discern information or media	
products online which are or may	products online which are or may	products online which are or may	
be protected by copyright laws	be protected by copyright laws	be protected by copyright laws	

Overarching Goal Use intellectual property appropriately

	 Explore ways in which a person may obtain permission to legally use copyrighted materials 	 Explore ways in which a person may obtain permission to legally use copyrighted materials
I can demonstrate the appropriate use	I can demonstrate the appropriate use	I can demonstrate appropriate use of
of intellectual properties in the	or intellectual properties in the	intellectual properties in the creation
creation of digital artifacts. (IC.1B.4a)	creation of digital artifacts. (IC.1B.4a)	of digital artifacts. (IC.1B.4a)
Create unique digital artifacts	Create unique digital artifacts	Create unique digital artifacts
that incorporate appropriate	that incorporate appropriate	that incorporate appropriate
resources from the public domain	resources from the public domain	resources from the public
or creative commons	or creative commons	domain or creative commons

IC.1B.4 | CONTENT AREA CONNECTIONS

CONTENT AREA	THIRD GRADE	FOURTH GRADE	FIFTH GRADE
ELA	W.3.7-9a-b	W.4.7-9a-b	W.5.7-9a-b
	Example Connection Activity:	Example Connection Activity:	Example Connection Activity:
	 Students can use public domain and creative commons when conducting research from print and digital sources 	 Students can use public domain and creative commons when conducting research from print and digital sources 	 Students can use public domain and creative commons when conducting research from print and digital sources

Math	3.MD.8 3.G.1	4.MD.3 4.G.1-2	5.MD.5 5.G.3-4
	 Example Connection Activities: Students can work together to solve real-world mathematical problems or find examples of geometric shapes in everyday objects Students can create presentations that represent their findings, making 	 Example Connection Activities: Students can work together to solve real-world mathematical problems or find examples of geometric shapes in everyday objects Students can create presentations that represent their findings, making 	 Example Connection Activities: Students can work together to solve real-world mathematical problems or find examples of geometric shapes in everyday objects Students can create presentations that represent their findings, making
	sure that copyright laws are followed	sure that copyright laws are followed	sure that copyright laws are followed

Science	Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions	Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions	Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions
	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product Students obtain feedback on their project and make improvements 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product Students obtain feedback on their project and make improvements 	 Example Connection Activities: Students can work together on a group project to define and solve a problem Students will work together to create an outline of resources and project deadlines Students will work together to discuss important ideas, make sure that copyright laws are followed, divide work appropriately, and review and make changes to the project to present a finished product Students obtain feedback on their project and make improvements
Social Studies	 CR.3.2 Example Connection Activity: Students will consider the licenses of digital copies of cultural artifacts 		

Library	RES.CO.4.1-3	RES.CO.4.1-3	RES.CO.4.1-3
	DIG.CI.2.4	DIG.CI.2.4	DIG.CI.2.4
	Example Connection Activities: (See	Example Connection Activities: (See	Example Connection Activities: (See
	Folklores, Fairy Tales, and Poems in	Reporting the News in the <u>4-5 Library</u>	Adopt a Genre in the <u>4-5 Library</u>
	the <u>2-3 Library Lesson Plans</u>)	Lesson Plans	Lesson Plans
	 Read Have You Heard About Lady Bird? by Marilyn Singer and have students discuss the differences between folklore, fairy tales, and poems Small groups will design and create their books using digital book maker platforms Students will learn about what information should and should not be shared when logging into a digital platform Students will use the internet to find 	 Students will use periodicals (e.g., newspapers and magazines) to learn the different elements Students will use Explora (MAGNOLIA) or print periodicals to write a current event summary on a technological breakthrough, including the cause and effect of the breakthrough Students can add images from the public domain to the current event summary 	 Students will demonstrate an understanding of the curation through creating a book display based on a pre-determined genre Students will use the library's management system to create the initial list of books to display Students will learn the importance of keeping login information safe and secure Students will create a short video showcasing the materials curated in the display
	and save images to illustrate books		Students will create a list of public
	• Students will learn the difference		domain resources that support the
	between copyrighted images and		book list
	images in public domain		 Students will analyze circulation data to gain feedback on the book display

Counseling	M 4	M 4	M 4
	B-LS.7	B-LS.7	B-LS.7
	 Example Connection Activity: Students can work in groups to	 Example Connection Activity: Students can work in groups to	 Example Connection Activity: Students can work in groups to
	prepare a presentation on various	prepare a presentation on various	prepare a presentation on various
	technology related careers and use	technology related careers and use	technology related careers and use
	public domain and creative	public domain and creative	public domain and creative
	commons media when conducting	commons media when conducting	commons media when conducting
	research	research	research

GLOSSARY

Accessibility: something that can be accessed, entered, or reached with little or no obstacles; developers may design computer software, websites, and other technologies to be more accessible to benefit all users, such as choosing a font size that helps all users read the text, even those with poor eyesight

Algorithm: a list of step-by-step instructions, procedures, or a formula that solves a problem or accomplishes a specific task

Artifact: an object made by a human being, typically an item of cultural or historical interest, such as pictures, code, videos, music, graphics, etc.

Attribution: ascribe a work, creation, or remark to a particular author, artist, speaker, etc.

Code comments: short notes to explain how the program works and the intention behind the code

Collaborative computing: allows users to work together on documents and projects, usually in real time, by taking advantage of underlying network communication systems

Component: a component or part is one hardware unit designed to connect to and function as part of a larger system, such as an integrated circuit can be considered a component of the motherboard

Computing systems: the hardware and software components of a computer that allow for the storage and manipulation of data

Computing technology: inventions related to or associated with computers and devices with a central processing unit, such as the hardware and software of computers, the internet and storage devices

Conditional: a set of rules performed if a certain condition is met; sometimes referred to as an "If-Then" statement, because IF a condition is met, THEN an action is performed

Control structures: a way to specify flow of control in programs, or the order in which instructions are executed within a program

Copy: duplicating letters, words, files, web pages, or other digital data

Copyright licenses: gives a person or entity the authorization to use a work from the copyright owner, usually in exchange for payment; copyright licenses may be exclusive or nonexclusive, and the rights that come with them vary according to the specifics of each license

Creative Commons: an internationally active non-profit organization that provides free licenses for creators to use when making their work available to the public

Cybersecurity: the practice of protecting critical systems and sensitive information from digital attacks

Decomposition: breaking down a complex task into simpler or smaller tasks

Debug: identify and remove errors from computer hardware or software

Delete: the act of eliminating a file, text, or another object from the computer hard drive or other media

Devices: any electronic device, including a laptop, tablet, smartphone, etc., and any internal or external hardware peripheral that attaches to a computer to send, receive, or process data

Digital data: information produced, collected, stored, or transmitted by a digital device

Event: an action that occurs as a result of the user or another source, such as a mouse click

Hacking: a hardware or software change not approved by the manufacturer, developer, or user that makes it do something it wasn't intended to do

Hardware: any physical component of a computer system

Inference: a conclusion reached on the basis of evidence and reasoning, such as reviewing and analyzing data

Input: data entered into or received by a computer

Intellectual property: refers to creations of the mind, such as inventions, literary and artistic works, designs, symbols, names, and images used in commerce; intellectual property rights are protected in law by patents, copyright and trademarks, which enable people to earn recognition or financial benefit from what they invent or create

Iterative process: a series of steps that you repeat, tweaking and improving your product with each cycle

Loop: a repetition of a segment of a program or algorithm

Modify: altering letters, words, files, web pages, or other digital data

Network: a collection of computers, servers, mainframes, or other devices connected to allow data sharing, such as the internet

Output: how the computer presents the results of the process (e.g., text on the screen, printed materials, sound from the speakers)

Packets: smaller pieces of information that are sent independently across a network and reassembled at the destination

Phishing attacks: a term used to describe a malicious individual or group who scam users by sending e-mails or creating web pages designed to collect an individual's online bank, credit card, or other login information

Processor: often referred to as the brain of the computer, it handles all the basic system instructions, such as processing mouse and keyboard input and running applications

Prediction: analyzing data to estimate that a specified thing will happen in the future or will be a consequence of something

Program (programming): the writing of instructions, statements, or commands that instruct the computer how to process data or to control a computer or software

Public domain: the free use of the work or object without any restrictions; a work may be in the public domain because it is not copyrighted, its copyright has expired, or its license specifies allowed use by the public

Raw data: the collection of information as gathered by the source before it has been further processed, cleaned, or analyzed

Remix: add, remove, or change someone else's work to fit a new purpose

Retrieve: the process of searching for, locating, and returning data, such as a user retrieving a document on a computer to be viewed or modified

Search: a function or process of finding letters, words, files, web pages, or other digital data

Sensor: an electronic device or object capable of detecting real-life conditions and interpreting what it has detected into data that the device can understand, such as a motion sensor that connects to a computer to help detect motion within a building

Sequence: an ordered list containing successive items, or functions for performing certain actions within a program

Software: a collection of instructions that enable the user to interact with a computer, its hardware, or perform tasks

Storage: any hardware capable of holding information either temporarily or permanently; storage can be removable (e.g., flash drive), internal (e.g., random-access memory), or external

Store: retaining or saving letters, words, files, web pages, or other digital data

Troubleshooting: following a set of steps to determine the problem or resolve a problem

Usability: how easy or difficult it is to use a computer, service, software product, or hardware device

Variables: used to store information to be referenced and manipulated in a computer program; they provide a way of labeling data with a descriptive name, so our programs can be understood more clearly by the reader and ourselves