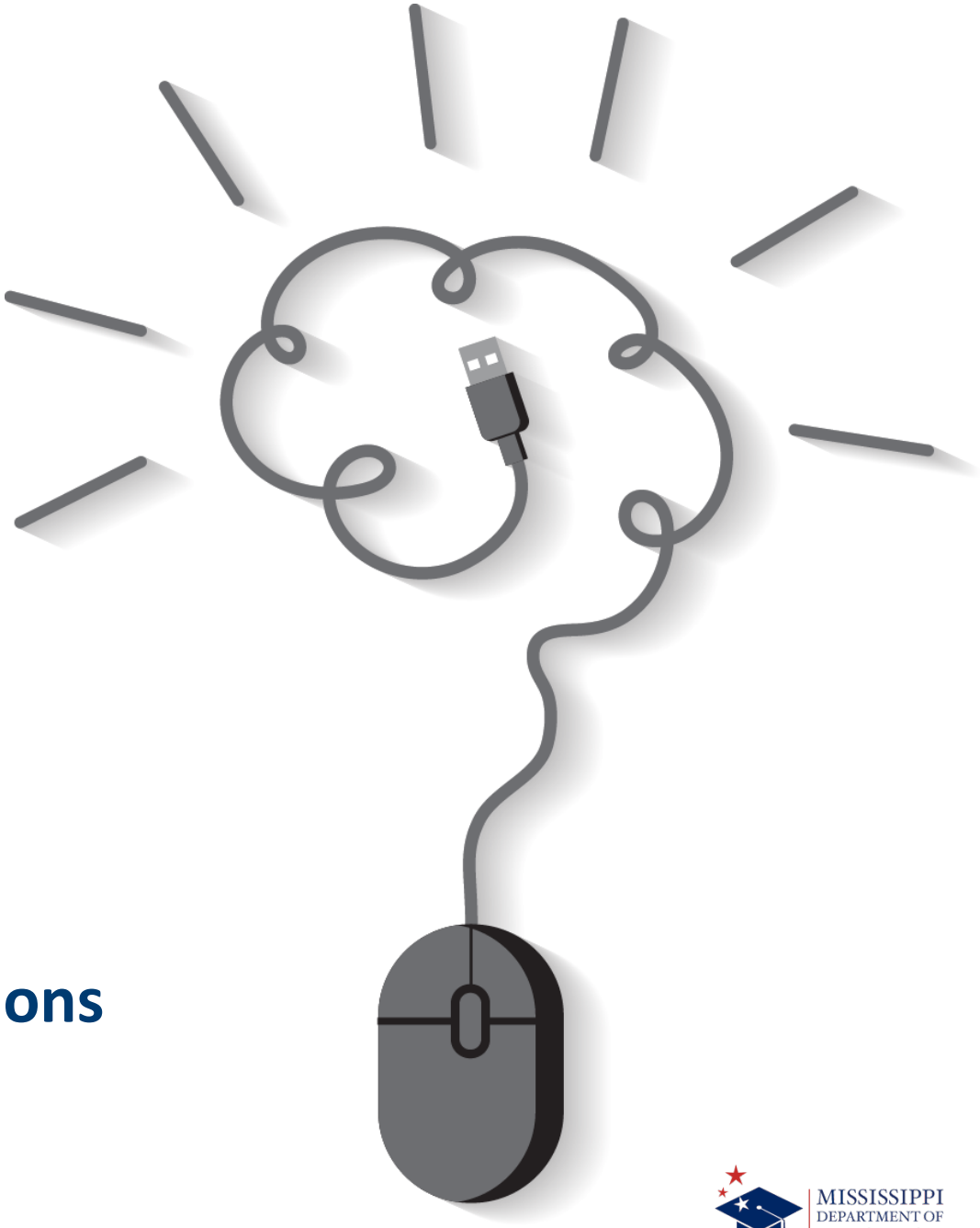

ELEMENTARY COMPUTER SCIENCE

LEVEL 1A | Grades K-2

Standards Deconstruction with Content Area Connections

MISSISSIPPI DEPARTMENT OF EDUCATION

MISSISSIPPI STATE UNIVERSITY
CENTER FOR CYBER EDUCATION

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ACKNOWLEDGEMENTS

The Mississippi Department of Education (MDE) gratefully acknowledges the hard work of the following individuals for their involvement in developing the Standards Deconstruction with Content Area Connections and supporting documents.

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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

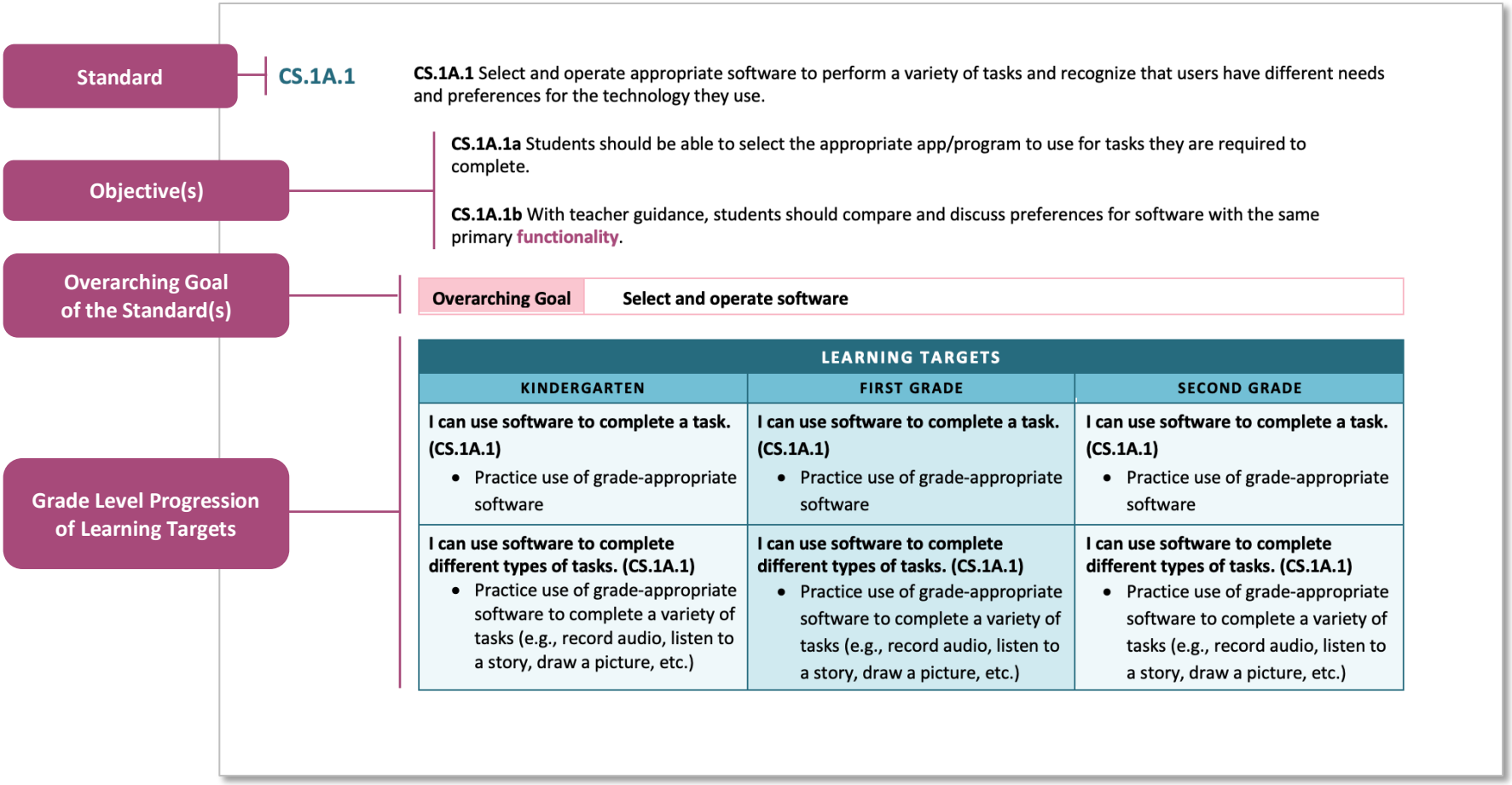
Purpose

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 second grade. Therefore, learning targets may repeat and/or increase in rigor from grade level to grade level.


Standard
CS.1A.1
CS.1A.1 Select and operate appropriate software to perform a variety of tasks and recognize that users have different needs and preferences for the technology they use.
Objective(s)
CS.1A.1a Students should be able to select the appropriate app/program to use for tasks they are required to complete.
CS.1A.1b With teacher guidance, students should compare and discuss preferences for software with the same primary functionality.
Overarching Goal of the Standard(s)
Overarching Goal
Select and operate software
Grade Level Progression of Learning Targets
LEARNING TARGETS
KINDERGARTEN
FIRST GRADE
SECOND GRADE
I can use software to complete a task. (CS.1A.1)
Practice use of grade-appropriate software
I can use software to complete a task. (CS.1A.1)
Practice use of grade-appropriate software
I can use software to complete a task. (CS.1A.1)
Practice use of grade-appropriate software
I can use software to complete different types of tasks. (CS.1A.1)
Practice use of grade-appropriate software to complete a variety of tasks (e.g., record audio, listen to a story, draw a picture, etc.)
I can use software to complete different types of tasks. (CS.1A.1)
Practice use of grade-appropriate software to complete a variety of tasks (e.g., record audio, listen to a story, draw a picture, etc.)
I can use software to complete different types of tasks. (CS.1A.1)
Practice use of grade-appropriate software to complete a variety of tasks (e.g., record audio, listen to a story, draw a picture, etc.)

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 *(https://forms.office.com/r/nWjWuGwXWP)* 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.

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.1A.1

CS.1A.1 Select and operate appropriate software to perform a variety of tasks and recognize that users have different needs and preferences for the technology they use.

CS.1A.1a Students should be able to select the appropriate app/program to use for tasks they are required to complete.

CS.1A.1b With teacher guidance, students should compare and discuss preferences for software with the same primary **functionality**.

Overarching Goal	**Select and operate software**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can use software to complete a task. (CS.1A.1) • Practice use of grade-appropriate software	**I can use software to complete a task. (CS.1A.1)** • Practice use of grade-appropriate software	**I can use software to complete a task. (CS.1A.1)** • Practice use of grade-appropriate software

I can use software to complete different types of tasks. (CS.1A.1) • Practice use of grade-appropriate software to complete a variety of tasks (e.g., record audio, listen to a story, draw a picture, etc.)	**I can use software to complete different types of tasks. (CS.1A.1)** • Practice use of grade-appropriate software to complete a variety of tasks (e.g., record audio, listen to a story, draw a picture, etc.)	**I can use software to complete different types of tasks. (CS.1A.1)** • Practice use of grade-appropriate software to complete a variety of tasks (e.g., record audio, listen to a story, draw a picture, etc.)
	I can choose the appropriate software to use for a task. (CS.1A.1a) With guidance and support: • Identify the requirements of the task • Choose the appropriate software to meet the requirements of the task	**I can choose the appropriate software to use for a task. (CS.1A.1a)** • Identify the requirements of the task • Choose the appropriate software to meet the requirements of the task
I can discuss needs and preferences for software usage. (CS.1A.1b) With guidance and support: • Identify needs and preferences of the user (e.g., font size, screen brightness, text-to-speech, translations, available templates, etc.)	**I can discuss needs and preferences for software usage. (CS.1A.1b)** With guidance and support: • Identify needs and preferences of the user (e.g., font size, screen brightness, text-to-speech, translations, available templates, etc.)	**I can discuss needs and preferences for software usage. (CS.1A.1b)** With guidance and support: • Identify needs and preferences of the user (e.g., font size, screen brightness, text-to-speech, translations, available templates, etc.)
		I can compare software with similar functionalities. (CS.1A.1b) With guidance and support: • Compare functionalities of similar types of software

CS.1A.1 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**RL.K.2-3** **W.K.1-3** **W.K.6** **SL.K.4-6** **Example Connection Activities:** • With prompting and support, students explore/use different software to dictate, draw, or write • With guidance and support, students explore/use different software to create a graphical representation (graphic organizer, storyboard, or story map) or audio recordings to retell a story and/or describe the elements of a story	**W.1.1-3** **W.1.6** **RL.1.2-1.3** **SL.1.4-6** **Example Connection Activities:** • With guidance and support, students explore/use different software to create a graphical representation (graphic organizer, storyboard, or story map) or audio recording to retell a story and/or describe the elements of a story • With guidance and support, students explore/use different software to produce and publish writing; with guidance and support	**W.2.1-3** **W.1.6** **RL.2.2-2.3** **SL.2.4-6** **Example Connection Activities:** • Students explore/use different software to create a graphical representation (graphic organizer, storyboard, or story map) or audio recording to recount a story and/or describe how characters respond to events of a story • With guidance and support, students explore/use different software to produce and publish writing

Math	**SMP.5** **K.OA.1-3** **K.NBT.1** **Example Connection Activity:** • With guidance and support, students explore and select an appropriate virtual manipulatives to model or complete their mathematical thinking or solutions	**SMP.5** **1.OA.1-2** **1.NBT.4-6** **Example Connection Activities:** • Facilitate a class discussion on comparing strategies or tools (e.g., pencil, manipulatives, etc.) used for addition and the different preferences students may have for specific tools or strategies, and connect this process to choosing an app or program • With guidance and support, students explore and select appropriate virtual manipulatives to model or complete their mathematical thinking or solution	**SMP.5** **2.OA.1** **2.NBT.6-7** **2.NBT.9** **Example Connection Activities:** • Facilitate a discussion on choosing the best mental strategy to fluently add and subtract and the different preferences students may have for these strategies, and connect this process to choosing the best app or program • Students explore and select appropriate virtual manipulatives to model or complete their mathematical thinking or solution
Science	**L.K.1A** **Example Connection Activity:** • With guidance and support, students use different software to create a comparison chart on living and nonliving things	**L.1.2** **Example Connection Activity:** • Students use different software to illustrate how living things change in form as they go through the general stages of a life cycle	**E.2.10.2** **Example Connection Activity:** • Students select and use software to identify and classify everyday objects that are resources from the Earth
Social Studies			

Library			**DIG.PR.3.1 – 3** **Example Connection Activities: (See *What Do Statues Represent?* in the 2-3 Library Lesson Plans)** • Read *Her Right Foot* by David Eggers and have students discuss what they have learned about the Statue of Liberty • Small groups will design and create their statues using materials in maker space centers • Small groups will use presentation software to explain the different aspects of their creation
Counseling			

CS.1A.2

CS.1A.2 Use appropriate terminology in identifying and describing the function of common physical components of computing systems (hardware).

A computing system is composed of hardware and software. Hardware consists of physical components.

CS.1A.2a Students should be able to identify and describe the function of **external hardware**, such as desktop computers, laptop computers, tablet devices, monitors, keyboards, mice, and printers.

Overarching Goal	**Use appropriate terminology to identify hardware**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can describe the difference between hardware and software. (CS.1A.2) With guidance and support: • Understand computing systems are composed of internal and external parts • Understand the difference between hardware (physical components of the computing system) and software (instructions given to the computing system)	**I can describe the difference between hardware and software. (CS.1A.2)** • Understand computing systems are composed of internal and external parts • Understand the difference between hardware (physical components of the computing system) and software (instructions given to the computing system).	**I can describe the difference between hardware and software. (CS.1A.2)** • Understand computing systems are composed of internal and external parts • Understand the difference between hardware (physical components of the computing system) and software (instructions given to the computing system).
I can identify hardware. (CS.1A.2) With guidance and support: • Learn proper names of hardware (e.g., desktop computer, laptop computer, tablet device, monitor,	**I can identify hardware. (CS.1A.2)** • Learn proper names of hardware (e.g., desktop computer, laptop computer, tablet device, monitor, keyboard, mouse, and printer, etc.)	**I can identify hardware. (CS.1A.2)** • Learn proper names of hardware (e.g., desktop computer, laptop computer, tablet device, monitor, keyboard, mouse, and printer, etc.)

keyboard, mouse, and printer, etc.) • Identify pieces of hardware	• Identify pieces of hardware	• Identify pieces of hardware
	I can understand the function of external hardware. (CS.1A.2a) With guidance and support: • Understand external hardware controls the **input** (data sent to the computing system, allowing interaction and/or control) or **output** (data received from a computing system, usually for display, projection, or physical reproduction) • Identify examples of external hardware that provide input (e.g., keyboard inputs data to the computing device) • Identify examples of external hardware that provide output (e.g., printer outputs data from the computing device)	**I can understand the function of external hardware. (CS.1A.2a)** • Understand external hardware controls the input (data sent to the computing system, allowing interaction and/or control) or output (data received from a computing system, usually for display, projection, or physical reproduction) • Identify examples of external hardware that provide input (e.g., keyboard inputs data to the computing device) • Identify examples of external hardware that provide output (e.g., printer outputs data from the computing device)
	I can describe the function of external hardware. (CS.1A.2a) With guidance and support: • Determine if the external hardware provides input or output	**I can describe the function of external hardware. (CS.1A.2a)** • Determine if the external hardware provides input or output

	• Use proper terminology to describe the function of external hardware	• Use proper terminology to describe the function of external hardware

CS.1A.2 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**L.K.5c** **Example Connection Activity:** • Sort pictures of different types of hardware into categories	**L.1.5c** **Example Connection Activities:** • Take an observation tour of a computing system to identify hardware; take annotations of the observations with pictures/drawings/checkmarks; present findings with multimedia device using appropriate terminology	**L.2.5c** **Example Connection Activities:** • Guide students in reading a one-page text about external hardware and have students identify and describe types of external hardware that control input and output using proper terminology

Math	**K.G.1** **K.G.5** **K.G.6** **K.CC.5** **K.MD.1** **K.MD.2** **Example Connection Activities:** • Identify and describe the shape of different parts of external hardware (e.g., the keyboard is a rectangle, etc.) • Use position terms to describe hardware components (e.g., the mouse is beside the keyboard, etc.) • Use shapes to draw images of hardware • Count the parts that make up a complete computing system (e.g., a desktop has a monitor, CPU, mouse, keyboard, etc.) • Compare the measurable attributes of external hardware	**1.G.1** **1.G.2** **1.MD.1** **1.MD.2** **Example Connection Activities:** • Identify the defining and non-defining attributes of external hardware • Identify and draw shapes of different parts of external hardware • Use 2D shapes to draw or build 3D replicas of external hardware • Compare the lengths of different external hardware components • Use objects to measure the length of hardware components (e.g., the keyboard is 4 crayons long and 2 crayons wide, etc.)	**2.MD.1** **2.MD.2** **2.MD.3** **2.MD.4** **Example Connection Activity:** • Estimate, measure, and compare the lengths of different parts of the external hardware
Science	**L.K.1B** **Example Connection Activity:** • Compare an organism's external parts to external hardware and how these parts are used		

Social Studies			
Library			
Counseling			

CS.1A.3

CS.1A.3 Describe basic hardware and software problems using accurate terminology.

CS.1A.3a Students should be able to communicate a problem with accurate terminology (e.g., when an app or program is not working as expected, a device will not turn on, the sound does not work, etc.).

Overarching Goal	**Describe problems using correct terminology**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can identify hardware and software problems (CS.1A.3) With guidance and support: • Understand what should happen if the hardware or software is working properly (e.g., screen will light up, software will play sound, etc.) • Identify indicators of hardware or software problems (e.g., device will not turn on, software unexpectedly shuts down, etc.)	**I can identify hardware and software problems (CS.1A.3)** With guidance and support: • Understand what should happen if the hardware or software is working properly (e.g., screen will light up, software will play sound, etc.) • Identify indicators of hardware or software problems (e.g., device will not turn on, software unexpectedly shuts down, etc.)	**I can identify hardware and software problems (CS.1A.3)** • Understand what should happen if the hardware or software is working properly (e.g., screen will light up, software will play sound, etc.) • Identify indicators of hardware or software problems (e.g., device will not turn on, software unexpectedly shuts down, etc.)
I can use appropriate terminology to describe problems with hardware and software. (CS.1A.3a) With guidance and support: • Identify the hardware or software that is not working properly	**I can use appropriate terminology to describe problems with hardware and software. (CS.1A.3a)** With guidance and support: • Identify the hardware or software that is not working properly	**I can use appropriate terminology to describe problems with hardware and software. (CS.1A.3a)** • Identify the hardware or software that is not working properly • Describe the problem using accurate terminology (e.g., the monitor is not working because

• Describe the problem using accurate terminology (e.g., the monitor is not working because the power cord is disconnected, etc.)	• Describe the problem using accurate terminology (e.g., the monitor is not working because the power cord is disconnected, etc.)	the power cord is disconnected, etc.)

CS.1A.3 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**L.K.4a** **Example Connection Activity:** • Students can collaborate as a class to create personal or class dictionaries that contain both pictures and words that focus on basic hardware and software terminology	**L.1.6** **Example Connection Activity:** • Students can use dictionaries that contain both pictures and words or EL dictionaries to determine and clarify the meanings of words used to describe hardware or software problems	**RI.2.7** **RI.2.9** **Example Connection Activities:** • Students can review a diagram of hardware, such as a printer, and explain how to turn it on (RI.2.7) • Students use a Venn diagram to show hardware or software working properly compared to not working properly
Math	**SMP.1** **K.OA.2** **Example Connection Activity:** • Facilitate a conversation about problem-solving and how it relates to real world problems involving addition and subtraction	**SMP.1** **1.OA.7-8** **1.NBT.4** **Example Connection Activity:** • Facilitate a conversation about problem-solving and how it relates to real world problems involving addition and subtraction	**SMP.1** **2.OA.1** **2.NBT.7** **Example Connection Activity:** • Facilitate a conversation about problem-solving and how it relates to real world problems involving addition and subtraction

Science	**Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions** **L.K.4** **E.K.10.3** **Example Connection Activity:** • Students can describe the problems that lead to extinction of plants and animals • Students can create a product from reused materials that will meet a human need, using the engineering and design process to define the problem, design, construct, evaluate, and improve the product	**Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions** **L.1.4** **E.1.10.3** **Example Connection Activity:** • Students can describe the environmental problems that cause plants to adapt to survive • Students can create a device that will collect free water to meet a human need, using the engineering and design process to define the problem, design, construct, evaluate, and improve the device	**Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions** **L.2.4** **E.K.10.3** **Example Connection Activity:** • Students can describe the problems that cause animals to adapt to survive • Students can develop a plan to change the force of friction to solve a problem, using the engineering and design process to define the problem, design, construct, evaluate, and improve the plan
Social Studies			
Library			
Counseling			

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.1A.1

NI.1A.1 Explain what passwords are and why we use them.

Learning to protect one's device or information from unwanted use by others is an essential first step in learning about cybersecurity. They should appropriately use and protect the passwords they are required to use.

Overarching Goal	**Explain passwords and their importance**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can explain the purpose of a password. (NI.1A.1) With guidance and support: • Understand passwords protect information • Identify information that needs to be protected	**I can explain the purpose of a password. (NI.1A.1)** With guidance and support: • Understand passwords protect information • Identify information that needs to be protected • Identify characteristics of a strong password (e.g., combination of	**I can explain the purpose of a password. (NI.1A.1)** • Understand passwords protect information • Identify information that needs to be protected • Identify characteristics of a strong password (e.g., combination of uppercase and lowercase letters,

	uppercase and lowercase letters, numbers, symbols; avoid common terms such as “password,” etc.)	numbers, symbols; avoid common terms such as “password,” etc.)
I can use my password. (NI.1A.1) With guidance and support: • Identify hardware and software that require a password • Practice using a password (if a **single sign-on solution**, such as Clever, is not used) • Understand a password is saved within a single sign-on solution, such as Clever (if applicable)	**I can use my password. (NI.1A.1)** With guidance and support: • Identify hardware and software that require a password • Practice using a password (if a single sign-on solution, such as Clever, is not used) • Understand a password is saved within a single sign-on solution, such as Clever (if applicable)	**I can use software to complete different types of tasks. (CS.1A.1)** • Identify hardware and software that require a password • Practice using a password (if a single sign-on solution, such as Clever, is not used) • Understand a password is saved within a single sign-on solution, such as Clever (if applicable)
	I can discuss the importance of protecting my password. (NA.1A.1) With guidance and support: • Understand who should know my passwords to certain accounts (e.g., parents, teachers, etc.) • Understand consequences of sharing passwords with others or storing passwords in an unprotected location • Identify ways to protect my passwords	**I can discuss the importance of protecting my password. (NA.1A.1)** • Understand who should know my passwords to certain accounts (e.g., parents, teachers, etc.) • Understand consequences of sharing passwords with others or storing passwords in an unprotected location • Identify ways to protect my passwords

NI.1A.1 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA		**L.1.1a** **Example Connection Activity:** • Student can identify upper- and lower-case letters, simple ending punctuation, stringing letters to form a password	**W.2.2** **Example Connection Activity:** • Students can compose short informative/explanatory texts on the importance of keeping passwords protected
Math			
Science	**L.K.1.B.1** **L.K.1B.2** **Example Connection Activity:** • Students can explain how animals use scent to recognize who is safe to enter their home		
Social Studies	**CI.K.1** **Example Connection Activity:** • Students can identify similar aspects of being a good citizen with those of cybersecurity	**CI.1.2** **Example Connection Activity:** • Students can correlate how a good citizen at school aligns with that of good digital citizenship and cybersecurity	**CI.2.2** **Example Connection Activity:** • Students can correlate how a good citizen in their community aligns with that of good digital citizenship and cybersecurity

Library			**DIG.CI.2.1 – 4** **Example Connection Activities: (See *How Animals Meet Their Needs* in the 2-3 Library Lesson Plans)** • Read *Welcome Home, Bear* by Il Sung Na and have students discuss the different animal habitats • Students are given a different animal to research using the DK FindOut! located in the MAGNOLIA database collection • Students will be given the MAGNOLIA password to be able to log into the site
Counseling			

NI.1A.2

NI.1A.2 Students should understand that computers connect them to people, places, and things around the world.

Overarching Goal	**Understand computers connect us to things around the world**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can use computers to access information. (NI.1A.2) With guidance and support: • Understand computers can provide information from around the world • Use the computer to research local, national, or global information from various sources (e.g., visit a website to collect data, watch a video to learn more about a topic, etc.)	**I can use computers to access information. (NI.1A.2)** With guidance and support: • Understand computers can provide information from around the world • Use the computer to research local, national, or global information from various sources (e.g., visit a website to collect data, watch a video to learn more about a topic, etc.)	**I can use computers to access information. (NI.1A.2)** • Understand computers can provide information from around the world • Use the computer to research local, national, or global information from various sources (e.g., visit a website to collect data, watch a video to learn more about a topic, etc.)
I can use computers to communicate with others. (NI.1A.2) With guidance and support: • Understand computers can connect people around the world • Use the computer to safely communicate with others located inside and outside of the classroom (e.g., participate in a classroom video conference, etc.)	**I can use computers to communicate with others. (NI.1A.2)** With guidance and support: • Understand computers can connect people around the world • Use the computer to safely communicate with others located inside and outside of the classroom (e.g., participate in a classroom video conference, etc.)	**I can use computers to communicate with others. (NI.1A.2)** • Understand computers can connect people around the world • Use the computer to safely communicate with others located inside and outside of the classroom (e.g., participate in a classroom video conference, etc.)

I can use computers to explore other places or cultures. (NI.1A.2) With guidance and support: • Understand computers can allow for exploration of places and cultures around the world • Use the computer to explore places and cultures (e.g., virtual field trips, listen to music, view artwork, etc.)	**I can use computers to explore other places or cultures. (NI.1A.2)** With guidance and support: • Understand computers can allow for exploration of places and cultures around the world • Use the computer to explore places and cultures (e.g., virtual field trips, listen to music, view artwork, etc.)	**I can use computers to explore other places or cultures. (NI.1A.2)** • Understand computers can allow for exploration of places and cultures around the world • Use the computer to explore places and cultures (e.g., virtual field trips, listen to music, view artwork, etc.)

NI.1A.2 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**RI.K.3** **SL.K.1-3** **Example Connection Activity:** • With prompting and support, students can discuss how computers connect them to people, places, and things around the world	**RI.1.3** **SL.1.1-3** **Example Connection Activity:** • With prompting and support, students can discuss how computer networks connect them to people, places, and things around the world	**RI.2.3** **SL.2.1-3** **Example Connection Activity:** • Students can discuss how computer networks connect them to people, places, and things around the world

Math	**Example Connection Activity:** • With guidance and support, students can use computers to access virtual manipulatives, web-based scavenger hunts aligned to mathematics content, math games, math videos, etc.	**Example Connection Activity:** • With guidance and support, students can use computers to access virtual manipulatives, web-based scavenger hunts aligned to mathematics content, math games, math videos, etc.	**Example Connection Activity:** • Students can use computers to access virtual manipulatives, web-based scavenger hunts aligned to mathematics content, math games, math videos, etc.
Science	**Science & Engineering Practice: Obtaining, Evaluating, and Communicating Information** **L.K.1A.2** **L.K.2.1** **Example Connection Activity:** • Students can use computers to obtain information and communicate findings to others in their classroom or outside the classroom	**Science & Engineering Practice: Obtaining, Evaluating, and Communicating Information** **L.1.1** **E.1.10.1** **Example Connection Activity:** • Students can use computers to obtain information and communicate findings to others in their classroom or outside the classroom	**Science & Engineering Practice: Obtaining, Evaluating, and Communicating Information** **L.2.2** **Example Connection Activity:** • Students can use computers to obtain information and communicate findings to others in their classroom or outside the classroom
Social Studies	**CI.K.3** **CR.K.2-3** **G.K.3** **Example Connection Activity:** • Students can explore different cultures by using the computer to watch videos, listen to music, etc.	**G.1.3** **Example Connection Activity:** • Students can identify places on a map and use the computer to take a virtual field trip	**G.2.2** **Example Connection Activity:** • Students can investigate physical features of the local region by taking virtual field trips

Library			**DIG.CO.1.1-3** **Example Connection Activities: (See *How Animals Meet Their Needs* in the 2-3 Library Lesson Plans)** • Read *Welcome Home, Bear* by Il Sung Na and have students discuss the different animal habitats • Students will be given a different animal to research using the DK FindOut! located in the MAGNOLIA database collection

Counseling	**B-LS-2** **B-LS 5** **B-LS 7** **Example Connection Activities:** **Making Connections** • Small group, classroom or large group instruction students can use computers to research their interests and connected career paths • Small group, classroom or large group instruction students can use computers to research the link between academic skills and career paths • Small group, classroom or large group instruction students can use computers to create thank you notes for community workers	**B-LS-2** **B-LS 5** **B-LS 7** **Example Connection Activities:** **Making Connections** • Small group, classroom or large group instruction students can use computers to research their interests and connected career paths • Small group, classroom or large group instruction students can use computers to research the link between academic skills and career paths • Small group, classroom or large group instruction students can use computers to create thank you notes for community workers	**B-LS-2** **B-LS 5** **B-LS 7** **Example Connection Activities:** **Making Connections** • Small group, classroom or large group instruction students can use computers to research their interests and connected career paths • Small group, classroom or large group instruction students can use computers to research the link between academic skills and career paths • Small group, classroom or large group instruction students can use computers to create thank you notes for community workers

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.1A.1

DA.1A.1 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.1A.1a 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		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can define data. (DA.1A.1) With guidance and support: • Understand the information stored and processed by a computing device is data	**I can define data. (DA.1A.1)** With guidance and support: • Understand the information stored and processed by a computing device is data	**I can define data. (DA.1A.1)** • Understand the information stored and processed by a computing device is data

• Identify different types of data (e.g., images, text documents, audio files, software, etc.)	• Identify different types of data (e.g., images, text documents, audio files, software, etc.)	• Identify different types of data (e.g., images, text documents, audio files, software, etc.)
I can save data using a computing device. (DA.1A.1, DA.1A.1a) With guidance and support: • Understand how to save data on a device (e.g., save a document) • Practice using software to save data	**I can save data using a computing device. (DA.1A.1, DA.1A.1a)** With guidance and support: • Understand how to save data on a device (e.g., save a document) • Practice using software to save data	**I can save data using a computing device. (DA.1A.1, DA.1A.1a)** • Understand how to save data on a device (e.g., save a document) • Practice using software to save data
	I can copy and paste data using a computing device. (DA.1A.1, DA.1A.1a) With guidance and support: • Understand how to copy and paste data on a device (e.g., copy and paste a sentence) • Practice using software to copy and paste data	**I can copy and paste data using a computing device. (DA.1A.1, DA.1A.1a)** • Understand how to copy and paste data on a device (e.g., copy and paste a sentence) • Practice using software to copy and paste data
	I can edit and delete data using a computing device. (DA.1A.1, DA.1A.1a) With guidance and support: • Understand how to edit data on a device (e.g., add text to an existing document, delete a file, edit the color of a shape, etc.) • Practice using software to edit and delete data	**I can edit and delete data using a computing device. (DA.1A.1, DA.1A.1a)** • Understand how to edit data on a device (e.g., add text to an existing document, delete a file, edit the color of a shape, etc.) • Practice using software to edit and delete data

	I can search and retrieve data using a computing device. (DA.1A.1a) With guidance and support: • Understand how to search for data on a device (e.g., search for a letter) • Understand how to locate and retrieve data on a device (e.g., look for a file and open the file) • Practice using software to search and retrieve data	**I can search and retrieve data using a computing device. (DA.1A.1a)** • Understand how to search for data on a device (e.g., search for a letter) • Understand how to locate and retrieve data on a device (e.g., look for a file and open the file) • Practice using software to search and retrieve data

DA.1A.1 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**RI.K.3** **RI.K.9** **W.K.6** **SL.K.4-6** **Example Connection Activities:** • Students can compose findings/stories using a computing device to store information • With guidance and support, students can explore/use different apps to produce, and publish writing	**RI.1.5** **RI.1.9** **W.1.6** **SL.1.4-6** **Example Connection Activities:** • Students can compose findings/stories using a computing device to store, copy, search, retrieve, modify, and delete information • With guidance and support, students can explore/use different apps to produce, and publish writing	**RI.2.3** **RI.2.9** **W.2.6** **SL.2.4-6** **Example Connection Activities:** • Students can compose findings/stories using a computing device to store, copy, search, retrieve, modify, and delete information • With guidance and support, students can explore/use different apps to produce, and publish writing

Math	**SMP.4** **K.OA.1-3** **K.NBT.1** **Example Connection Activity:** • With guidance and support, students can model math thinking while working digitally (e.g., virtual manipulative platforms, drawings, presentation software, etc.) and use a computing device to store information	**SMP.4** **1.OA.1-2** **1.NBT.4-6** **Example Connection Activity:** • With guidance and support, students can model math thinking while working digitally (e.g., virtual manipulative platforms, drawings, presentation software, etc.) and use a computing device to store, copy, search, retrieve, modify, and delete information	**SMP.4** **2.OA.1** **2.NBT.6-7** **2.NBT.9** **Example Connection Activity:** • Students can model math thinking while working digitally (e.g., virtual manipulative platforms, drawings, presentation software, etc.) and use a computing device to store, copy, search, retrieve, modify, and delete information

Science	**Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information** **L.K.1A.1** **L.K.2.3** **L.K.3A.1** **E.K.8B.2** **E.K.10.2** **Example Connection Activity:** • With guidance and support, students can collect and store data digitally during investigations	**Science and Engineering Practices: Planning Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information** **L.1.3A.1** **P.1.6B.1** **E.1.9B.3** **Example Connection Activity:** • With guidance and support, students can collect, store, edit, and retrieve data digitally during investigations	**Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information** **L.2.3B.2** **P.2.5.1** **P.2.6.1** **E.2.10.2** **Example Connection Activity:** • Students can collect, store, edit, and retrieve data digitally during investigations
Social Studies	**CR.K.2** **H.K.1-2** **Example Connection Activity:** • With guidance and support, students can digitally collect and store information about cultures, symbols, customs, and historical figures	**CR.1.2** **H.1.1** **Example Connection Activity:** • With guidance and support, students can digitally collect and store information about cultures, and historical figures	**CR.1.2** **H.1.1** **Example Connection Activity:** • Students can digitally collect, store, edit, and retrieve information about cultures, oral traditions, and historical figures/events

Library			**RES.EV.3.3** **Example Connection Activities: (See *How Animals Meet Their Needs* in the 2-3 Library Lesson Plans)** • Read *Welcome Home, Bear* by Il Sung Na and have students discuss the different animal habitats • Students will be given a different animal to research using the DK FindOut! located in the MAGNOLIA database collection • Students will use the information found to complete the animal habitats digital graphic organizer
Counseling			

DA.1A.2

DA.1A.2 Collect and present the same data in various visual formats.

The collection and use of data about the world around them is a routine part of life and influences how people live.

DA.1A.2a Students should be able to collect data.

DA.1A.2b Students should be able to present data in various visual formats.

Overarching Goal	**Collect and present data**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can collect data. (DA.1A.2, DA.1A.2a) With guidance and support: • Gather data on a specific topic (e.g., weather, color, size, etc.) • Classify data into similar categories (e.g., sunny days and rainy days, color of eyes, measurement of items, etc.)	**I can collect data. (DA.1A.2, DA.1A.2a)** • Gather data on a specific topic (e.g., weather, color, size, etc.) • Classify data into similar categories (e.g., sunny days and rainy days, color of eyes, measurement of items, etc.)	**I can collect data. (DA.1A.2, DA.1A.2a)** • Gather data on a specific topic (e.g., weather, color, size, etc.) • Classify data into similar categories (e.g., sunny days and rainy days, color of eyes, measurement of items, etc.)
I can present data. (DA.1A.2, DA.1A.2b) With guidance and support: • Present data visually (e.g., pie chart, bar chart, pictograph, graphic organizer, etc.)	**I can present data. (DA.1A.2, DA.1A.2b)** • Present data visually (e.g., pie chart, bar chart, pictograph, graphic organizer, etc.)	**I can present data. (DA.1A.2, DA.1A.2b)** • Present data visually (e.g., pie chart, bar chart, pictograph, graphic organizer, etc.)
	I can present the same data in different ways. (DA.1A.2, DA.1A.2b) With guidance and support:	**I can present the same data in different ways. (DA.1A.2, DA.1A.2b)** • Present data visually

	• Present data visually • Organize the same data in a different visual presentation	• Organize the same data in a different visual presentation

DA.1A.2 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**RI.K.7** **RL.K.3** **RL.K.9** **SL.K.5** **Example Connection Activities:** • With guidance and support, students can interpret information from print or digital sources presented visually, orally, or quantitatively (e.g., charts, graphs, diagrams, timelines, animations, interactive elements on Web pages, etc.) and explain how the information contributes to an understanding of the text, answers a question quickly or solves a problem efficiently • With prompting and support, students can compare and contrast the adventures and experiences of characters in familiar stories, and then discuss ways to display the data visually	**RI.1.5** **RI.1.7** **W.1.6** **RL.1.3** **RL.1.9** **SL.1.5** **Example Connection Activity:** • Students can interpret information from print or digital sources presented visually, orally, or quantitatively (e.g., charts, graphs, diagrams, timelines, animations, interactive elements on webpages, etc.) and explain how the information contributes to an understanding of the text, answers a question quickly or solves a problem efficiently	**RI.2.5** **RI.2.7** **W.2.6** **RL.2.3** **RL.2.9** **SL.2.5** **Example Connection Activities:** • Students can interpret information from print or digital sources presented visually, orally, or quantitatively (e.g., charts, graphs, diagrams, timelines, animations, interactive elements on Web pages, etc.) and explain how the information contributes to an understanding of the text, answers a question quickly or solves a problem efficiently • Students can compare and contrast the adventures and experiences of characters in familiar stories, and then discuss ways to display the data visually

Math	**K.CC.1** **K.MD.3** **Example Connection Activities:** • Collect data by counting different objects or taking a survey • Classify objects and collect the data for the number of objects in each category (e.g., shapes, colors, etc.)	**1.MD.4** **Example Connection Activities:** • Use mathematical strategies to collect data by conducting surveys of favorite candy, sports, tech tool, etc. • With guidance and support, use software programs to generate picture graphs and bar graphs, etc.	**2.MD.9-10** **Example Connection Activities:** • Collect data by measuring classroom items and create a line plot • Use software programs to generate picture graphs and bar graphs, etc.
Science	**Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information** **L.K.1A.1** **L.K.2.3** **L.K.3A.1** **E.K.8B.2** **E.K.10.2** **Example Connection Activity:** • With guidance and support, students can collect data during investigations and present their findings visually	**Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information** **L.1.3A.1** **P.1.6B.1** **E.1.9B.3** **Example Connection Activity:** • With guidance and support, students can collect data during investigations and present their findings visually	**Science & Engineering Practices: Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking; Obtaining, Evaluating, and Communicating Information** **L.2.3B.2** **P.2.5.1** **P.2.6.1** **E.2.10.2** **Example Connection Activity:** • Students can collect data during investigations and present their findings visually

Social Studies	**H.K.1** **Example Connection Activity:** • Students can collect data on symbols within their school, community, state, or nation and create visual representations of that data on a physical or digital medium	**E.1.1** **G.1.3** **Example Connection Activities:** • Students can gather data about the differences in needs and wants in their school and community • Students can create a visual map with various types and amounts of data (e.g., those who ride the school bus) and then map out the different bus zones	**E.2.2-3** **Example Connection Activities:** • Students can gather data about the differences in needs and wants in their school and community • Students can create visual representations of supply and demand on the price of goods and services
Library			**DIG.PR.3.1 – 3** **Example Connection Activities: (See *What Do Statues Represent?* in the 2-3 Library Lesson Plans)** • Read *Her Right Foot* by David Eggers and have students discuss what they have learned about the Statue of Liberty • Students will complete a visual map to discuss the classroom values • Small groups will use the visual map when designing and building their statue
Counseling			

DA.1A.3

DA.1A. 3 Identify and describe patterns in **data visualizations**, such as charts or graphs, to make predictions.

*All data can be used to make **inferences** or **predictions** about the world.*

DA.1A.3a Students should be able to analyze data in visual formats.

DA.1A.3b Students should be able to identify patterns and make predictions based on the patterns.

Overarching Goal	**Analyze data visualizations and make predictions**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can analyze data in visual formats. (DA.1A.3a) With guidance and support: • Understand the data that is represented (e.g., a piece of the pie chart represents the number of students with brown eyes, etc.) • Understand the connections between the data represented (e.g., characteristics of a main character, rainfall totals over the year, etc.) • Answer questions based on data represented	**I can analyze data in visual formats. (DA.1A.3a)** With guidance and support: • Understand the data that is represented (e.g., a piece of the pie chart represents the number of students with brown eyes, etc.) • Understand the connections between the data represented (e.g., characteristics of a main character, rainfall totals over the year, etc.) • Answer questions based on data represented	**I can analyze data in visual formats. (DA.1A.3a)** • Understand the data that is represented (e.g., a piece of the pie chart represents the number of students with brown eyes, etc.) • Understand the connections between the data represented (e.g., characteristics of a main character, rainfall totals over the year, etc.) • Answer questions based on data represented
	I can identify patterns in data visualizations. (DA.1A.3. DA.1A.3b) With guidance and support:	**I can identify patterns in data visualizations. (DA.1A.3. DA.1A.3b)**

	• Recognize data that repeats in a similar way in a data visualization (e.g., temperatures are higher in the afternoon and lower in the morning) • Identify the similar characteristics in data visualizations that create patterns	• Recognize data that repeats in a similar way in a data visualization (e.g., temperatures are higher in the afternoon and lower in the morning) • Identify the similar characteristics in data visualizations that create patterns
	I can describe patterns in data visualizations. (DA.1A.3. DA.1A.3b) With guidance and support: • Describe how the similar characteristics of data visualizations repeat to form a pattern	**I can describe patterns in data visualizations. (DA.1A.3. DA.1A.3b)** • Describe how the similar characteristics of data visualizations repeat to form a pattern
	I can make predictions based on patterns in data. (DA.1A.3. DA.1A.3b) With guidance and support: • Recognize the patterns in the data • Make predictions about future data based on the pattern (e.g., the temperature tomorrow morning will be lower than tomorrow afternoon, etc.)	**I can make predictions based on patterns in data. (DA.1A.3. DA.1A.3b)** • Recognize the patterns in the data • Make predictions about future data based on the pattern (e.g., the temperature tomorrow morning will be lower than tomorrow afternoon, etc.)

DA.1A.3 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**RI.K.7** **RL/RI.K.1** **Example Connection Activity:** • With guidance and support, students can establish foundational skills for picture/idea relationships by discussing what moments in a story an illustration depicts	**RI.1.7** **RL/RI.1.1** **Example Connection Activities:** • Students can annotate a text to show the relationships between the illustrations and details in the text • Students can complete a graphic organizer about key details and make predictions on what will happen next based on the details read	**RI.2.7** **RL/RI.2.1** **Example Connection Activity:** • Students can complete a graphic organizer to detail who, what, where, when, why and how as well as make predictions on the details as they read
Math	**K.CC.4-6** **Example Connection Activity:** • Students can use pictographs, pie charts, and bar graphs to determine the quantity or frequency of an object or event and compare them	**1.MD.4** **Example Connection Activity:** • Students can ask and respond to questions about total number of data points, the number in each category, and compare each category based on graph previously created	**2.MD.10** **Example Connection Activity:** • Students can solve basic put-together, take-apart and comparison problems using information displayed on graphs previously created

Science	**Science & Engineering Practices: Asking Questions and Defining Problems; Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking** **E.K.8A** **E.K.8B.1** **Example Connection Activities:** • Students can describe patterns of seasonal change • Students can describe patterns of sunlight (e.g., day and night)	**Science & Engineering Practices: Asking Questions and Defining Problems; Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking** **E.1.9A.1-3** **E.1.9B.2** **Example Connection Activities:** • Students can describe weather patterns and make predictions • Students can explain patterns of bodies of water	**Science & Engineering Practices: Asking Questions and Defining Problems; Planning and Carrying Out Investigations; Analyze and Interpret Data; Using Mathematics and Computational Thinking** **E.2.8** **Example Connection Activity:** • Students can describe patterns of the sun, moon, and stars and predict weather patterns
Social Studies		**G.1.3** **Example Connection Activity:** • Students can create a visual map with various types and amounts of data (e.g., data of those who ride the school bus) and map out the different bus zones	

Library			**RES.EV.3.1 - 4** **Example Connection Activities: (See *How Animals Meet Their Needs* in the 2-3 Library Lesson Plans)** • Read *Welcome Home, Bear* by Il Sung Na and have students discuss the different animal habitats • Each student will be given a different animal to research using the DK FindOut! located in the MAGNOLIA database collection • Students will summarize the information found to complete the digital animal habitats graphic organizer
Counseling			

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.1A.1

AP.1A.1 Model daily processes by creating and following algorithms (sets of step-by-step instructions) to complete tasks.

Composition *is the combination of smaller tasks into more complex tasks.*

AP.1A.1a Students should be able to create and follow algorithms.

Overarching Goal	**Create and follow an algorithm (step-by-step instructions)**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can define algorithm. (AP.1A.1) With guidance and support: • Understand an algorithm is a set of step-by-step instructions	**I can define algorithm. (AP.1A.1)** • Understand an algorithm is a set of step-by-step instructions	**I can define algorithm. (AP.1A.1)** • Understand an algorithm is a set of step-by-step instructions

I can create an algorithm to complete a task. (AP.1A.1, AP.1A.1a) With guidance and support: • Develop a set of step-by-step instructions to complete a daily task (e.g., how to brush your teeth) • Share algorithms visually, orally, or in writing	**I can create an algorithm to complete a task. (AP.1A.1, AP.1A.1a)** With guidance and support: • Develop a set of step-by-step instructions to complete a daily task (e.g., how to brush your teeth) • Share algorithms visually, orally, or in writing	**I can create an algorithm to complete a task. (AP.1A.1, AP.1A.1a)** • Develop a set of step-by-step instructions to complete a daily task (e.g., how to brush your teeth) • Share algorithms visually, orally, or in writing
I can follow an algorithm to complete a task. (AP.1A.1, AP.1A.1a) With guidance and support: • Understand the steps described in the algorithm • Follow the steps of the algorithm • Determine if the algorithm led to successful completion of the task	**I can follow an algorithm to complete a task. (AP.1A.1, AP.1A.1a)** • Understand the steps described in the algorithm • Follow the steps of the algorithm • Determine if the algorithm led to successful completion of the task	**I can follow an algorithm to complete a task. (AP.1A.1, AP.1A.1a)** • Understand the steps described in the algorithm • Follow the steps of the algorithm • Determine if the algorithm led to successful completion of the task

AP.1A.1 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**W.K.3** **W.K.7** **RL/RI.K.2** **Example Connection Activity:** • Students can use a beginning, middle, end graphic organizer to teach visual sequencing in a narrative or expository writing (e.g., how-to routines, events in a story)	**W.1.3** **W.1.7** **RL/RI.1.2** **Example Connection Activity:** • Students can use a beginning, middle, end graphic organizer to teach visual sequencing in a narrative/expository writing and use illustrations and written text to convey sequence (e.g., how-to routines, events of a story)	**RI.2.3** **RI.2.9** **W.2.6** **SL.2.4-6** **Example Connection Activities:** • Students can use various graphic organizers to plan and write narratives/expository pieces in sequential order, using multiple modes of media to convey meaning
Math	**SMP.1** **K.OA.1-3** **K.NBT.1** **Example Connection Activities:** • With guidance and support, students explain their problem-solving strategies and sequencing of the steps necessary to solve a problem • With guidance and support, students can verbalize or write an algorithm to solve a problem and see if their classmates can follow the algorithm to get the correct solution	**SMP.1** **1.OA.1-2** **1.NBT.4-6** **Example Connection Activities:** • Students explain their problem-solving strategies and sequencing of the steps necessary to solve a problem • Students can verbalize or write an algorithm to solve a problem and see if their classmates can follow the algorithm to get the correct solution	**SMP.1** **2.OA.1** **2.NBT.6-7** **2.NBT.9** **Example Connection Activities:** • Students explain their problem-solving strategies and sequencing of the steps necessary to solve a problem • Students can verbalize or write an algorithm to solve a problem and see if their classmates can follow the algorithm to get the correct solution

Science	**L.K.2** **Example Connection Activity:** • Students can illustrate the stages or step-by-step process of the life cycle	**L.1.2** **Example Connection Activity:** • Students can illustrate the stages or step-by-step process of the life cycle	**L.2.2** **Example Connection Activity:** • Students can illustrate the stages or step-by-step process of the life cycle
Social Studies	**G.K.1** **G.K.3** **Example Connection Activity:** • Students can create a map with step-by-step directions on how to navigate/travel to various locations	**CI.1.1-2** **Example Connection Activity:** • Students can create step-by-step instructions for how to exhibit good citizenship throughout the day (home and school)	
Library			
Counseling			

AP.1A.2

AP.1A.2 Model the way programs store and manipulate data by using numbers or other symbols to represent information.

Information in the real world can be represented in computer programs.

AP.1A.2a Students should be able to model data storage and manipulation by using representative symbols.

Overarching Goal	**Model how programs store and manipulate data**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can represent information (data) with numbers or symbols. (AP.1A.2) With guidance and support: • Understand information can be represented by numbers, symbols, or images (e.g., picture of an arrow to represent a direction, thumbs up/down for yes/no) • Determine an appropriate visual to represent information	**I can represent information (data) with numbers or symbols. (AP.1A.2)** With guidance and support: • Understand information can be represented by numbers, symbols, or images (e.g., picture of an arrow to represent a direction, thumbs up/down for yes/no) • Determine an appropriate visual to represent information	**I can represent information (data) with numbers or symbols. (AP.1A.2)** • Understand information can be represented by numbers, symbols, or images (e.g., picture of an arrow to represent a direction, thumbs up/down for yes/no) • Determine an appropriate visual to represent information
I can change numbers or symbols in order to change the data. (AP.1A.2a) With guidance and support: • Understand if the number or symbol is changed, the data it represents has changed • Copy, paste, edit, or delete numbers or symbols to change the data	**I can change numbers or symbols in order to change the data. (AP.1A.2a)** With guidance and support: • Understand if the number or symbol is changed, the data it represents has changed • Copy, paste, edit, or delete numbers or symbols to change the data	**I can change numbers or symbols in order to change the data. (AP.1A.2a)** • Understand if the number or symbol is changed, the data it represents has changed • Copy, paste, edit, or delete numbers or symbols to change the data

	I can model how programs store data (AP.1A.2a) With guidance and support: • Understand using numbers and symbols to represent information is similar to how programs store information	**I can model how programs store data (AP.1A.2a)** • Understand using numbers and symbols to represent information is similar to how programs store information

AP.1A.2 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**SL.K.5** **Example Connection Activity:** • Students can draw what is described in print	**SL.1.5** **Example Connection Activity:** • Students can complete story maps with drawings to clarify the details in the text	**SL.2.5** **Example Connection Activity:** • Students can use a program to create audio recordings of stories and add representative drawings or visuals
Math	**K.OA.1** **Example Connection Activity:** • Students understand the importance of math symbols for operations (e.g., + for addition, etc.)	**1.MD.5a** **Example Connection Activity:** • Students understand the importance of math symbols for money (e.g., $ for dollars, etc.)	**2.NBT.1** **2.NBT.3** **Example Connection Activity:** • Students understand the importance of math symbols for place value (e.g., comma for place value of thousands, etc.)
Science			

Social Studies	**G.2.3** **H.2.1** **Example Connection Activities:** • Students can use arrows when writing algorithms to represent direction (e.g., north, northwest, northeast, south, southwest, southeast, etc.) • Students can encode and decode using numbers, pictographs, or other symbols to represent measurements of time	**E.1.3** **Example Connection Activity:** • Students can use an excel spreadsheet to input monetary values including symbols	
Library			
Counseling			

AP.1A.3

AP.1A.3 Develop programs with sequences and simple **loops** to express ideas or address a problem.

*Programming is used as a tool to create products that reflect a wide range of interests. **Control structures** specify the order in which instructions are executed within a program. **Sequences** are the order of instructions in a program.*

AP.1A.3a Students should be able to express ideas or address problems by developing programs with sequences and simple loops.

Overarching Goal	**Develop programs using sequences and loops**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can define program and sequence. (AP.1A.3) With guidance and support: • Understand a program is a series of instructions that controls a computer • Understand sequence is the order of instructions within a program	**I can define program, sequence, and loop. (AP.1A.3)** With guidance and support: • Understand a program is a series of instructions that controls a computer • Understand sequence is the order of instructions within a program • Understand a loop is the repetition of a sequence of code multiple times	**I can define program, sequence, and loop. (AP.1A.3)** • Understand a program is a series of instructions that controls a computer • Understand sequence is the order of instructions within a program • Understand a loop is the repetition of a sequence of code multiple times
I can create a simple program. (AP.1A.3, AP.1A.3a) With guidance and support: • Create a simple program to express an idea (e.g., retell a story)	**I can create a simple program. (AP.1A.3, AP.1A.3a)** With guidance and support: • Create a simple program to express an idea (e.g., retell a story)	**I can create a simple program. (AP.1A.3, AP.1A.3a)** • Create a simple program to express an idea (e.g., retell a story)

• Create a simple program to solve a problem (e.g., teach classmates how to recycle) • Execute the program created	• Create a simple program to solve a problem (e.g., teach classmates how to recycle) • Execute the program created	• Create a simple program to solve a problem (e.g., teach classmates how to recycle) • Execute the program created
	I can create a simple program with a loop. (AP.1A.3, AP.1A.3a) With guidance and support: • Create a simple program with at least one loop to express an idea • Create a simple program with at least one loop to solve a problem • Execute the program created	**I can create a simple program with a loop. (AP.1A.3, AP.1A.3a)** • Create a simple program with at least one loop to express an idea • Create a simple program with at least one loop to solve a problem • Execute the program created

AP.1A.3 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**RL.K.2-3** **Example Connection Activity:** • With guidance and support, students can create an animation that retells a story highlighting characters, settings, and major events	**RL.1.2-3** **Example Connection Activity:** • Students can create an animation that retells a story highlighting characters, settings, and major events	**RL.2.2-3** **Example Connection Activity:** • Students can create an animation that retells a story highlighting the central message, lesson, or moral of the story, and how characters respond to major events in the story
Math		**1.NBT.1** **1.G.2** **Example Connection Activities:** • Students will learn how to code using loops, then discuss how many blocks students use when using loops vs. not using loops • Working with a partner, students will use loops to program two-dimensional shapes while using collaborative conversations to ask clarifying questions	

Science	**Science & Engineering Practice: Asking Questions and Defining Problems** **E.K.10.2** **Example Connection Activity:** • Students can develop a set of steps to address pollution on the beach	**Science & Engineering Practice: Asking Questions and Defining Problems** **L.1.1.3** **E.1.10.2-3** **Example Connection Activities:** • Students can develop a model of the absorption of water by a plant and how it is transported through the plant • Students can develop a set of steps to address water pollution or how to collect water to meet a need	**Science & Engineering Practice: Asking Questions and Defining Problems** **E.2.8.6** **E.2.10.5** **Example Connection Activities:** • Students can create a model to demonstrate the pattern of motion of the sun or moon • Students can develop a set of steps to prevent/repair soil erosion
Social Studies		**G.1.1-2** **Example Connection Activity:** • Students can create a loop to represent weather events or climate change	
Library			
Counseling			

AP.1A.4

AP.1A.4 Decompose (break down) the steps needed to solve a problem into a precise sequence of instructions.

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

AP.1A.4a Students should be able to break down the steps needed to solve a problem into a precise sequence of instructions.

Overarching Goal	**Decompose (break down) the steps needed to solve a problem**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can define decompose. (AP.1A.4) With guidance and support: • Understand that decompose means to break down a task into simpler tasks	**I can define decompose. (AP.1A.4)** With guidance and support: • Understand that decompose means to break down a task into simpler tasks	**I can define decompose. (AP.1A.4)** • Understand that decompose means to break down a task into simpler tasks
I can decompose a problem into a series of steps. (AP.1A.4, AP.1A.4a) With guidance and support: • Identify a precise sequence of instructions or steps needed to solve a problem (e.g., how to draw a shape, how to solve a math problem, etc.) • Demonstrate the steps orally, visually, or in writing	**I can decompose a problem into a series of steps. (AP.1A.4, AP.1A.4a)** With guidance and support: • Identify a precise sequence of instructions or steps needed to solve a problem (e.g., how to draw a shape, how to solve a math problem, etc.) • Demonstrate the steps orally, visually, or in writing	**I can decompose a problem into a series of steps. (AP.1A.4, AP.1A.4a)** • Identify a precise sequence of instructions or steps needed to solve a problem (e.g., how to draw a shape, how to solve a math problem, etc.) • Demonstrate the steps orally, visually, or in writing

AP.1A.4 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**W.K.7** **RI.K.3** **Example Connection Activities:** • With guidance and support, students can break down the steps needed to make a peanut butter and jelly sandwich or brush their teeth • Students can listen to a technical text read aloud or in a listening center	**RF.1.3e** **W.1.7** **Example Connection Activities:** • Students can use syllabication steps to break words into syllables • Students can read a technical text and complete a graphic organizer to illustrate the steps • Students can respond to a prompt about how to make a peanut butter and jelly sandwich, brush their teeth, etc.	**RI.2.7** **RI.2.3** **W.2.7** **Example Connection Activity:** • Students can read and annotate a technical text and write to explain how the images contribute and clarify the text
Math	**K,OA.3** **K.NBT.1** **Example Connection Activity:** • Students can decompose numbers and can write or illustrate clear directions for the sequence of steps	**SMP.1** **1.OA.6** **Example Connection Activities:** • Students can decompose numbers to add or subtract within 20, and write or illustrate clear directions for the sequence of steps needed to solve a mathematical problem	**SMP.1** **2.NBT.7** **Example Connection Activities:** • Students can decompose numbers to add or subtract within 1000, and write or illustrate clear directions for the sequence of steps needed to solve a mathematical problem

Science	**P.K.5B.2** **Example Connection Activity:** • Students can describe the smaller components of a large solid		
Social Studies		**G.1.2** **Example Connection Activity:** • Students can break down the water or food cycle into step-by-step sequential order	
Library			
Counseling			

AP.1A.5

AP.1A.5 Develop plans that describe a program's sequence of events, goals, and expected outcomes.

Creating a plan for what a program will do clarifies the steps that will be needed to create a program and can be used to check if a program is correct.

AP.1A.5a Students should be able to develop and visually illustrate the plan for what a program will do.

Overarching Goal	**Develop a plan for what a program will do**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can identify the goals and outcomes of a program. (AP.1A.5) With guidance and support: • Identify the goals and outcomes of a program (e.g., move from one location to another, retell a story, etc.)	**I can identify the goals and outcomes of a program. (AP.1A.5)** With guidance and support: • Identify the goals and outcomes of a program (e.g., move from one location to another, retell a story, etc.)	**I can identify the goals and outcomes of a program. (AP.1A.5)** • Identify the goals and outcomes of a program (e.g., move from one location to another, retell a story, etc.)
I can describe a program's sequence of events. (AP.1A.5) With guidance and support: • Determine the sequence of events needed to reach the goal or outcome of the program • Describe the sequence of events	**I can describe a program's sequence of events. (AP.1A.5)** With guidance and support: • Determine the sequence of events needed to reach the goal or outcome of the program • Describe the sequence of events	**I can describe a program's sequence of events. (AP.1A.5)** • Determine the sequence of events needed to reach the goal or outcome of the program • Describe the sequence of events
I can create a plan for what a program will do. (AP.1A.5, AP.1A.5a) With guidance and support:	**I can create a plan for what a program will do. (AP.1A.5, AP.1A.5a)** With guidance and support:	**I can create a plan for what a program will do. (AP.1A.5, AP.1A.5a)** With guidance and support:

• Write and illustrate the steps of the program and intended outcome	• Write and illustrate the steps of the program and intended outcome	• Write and illustrate the steps of the program and intended outcome
I can use the plan to test the success of a program. (AP.1A.5) With guidance and support: • Use the plan to test the program • Identify any problems in the plan if the desired outcome or goals were not reached • Modify the plan as needed to run a successful program	**I can use the plan to test the success of a program. (AP.1A.5)** With guidance and support: • Use the plan to test the program • Identify any problems in the plan if the desired outcome or goals were not reached • Modify the plan as needed to run a successful program	**I can use the plan to test the success of a program. (AP.1A.5)** • Use the plan to test the program • Identify any problems in the plan if the desired outcome or goals were not reached • Modify the plan as needed to run a successful program

AP.1A.5 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**W.K.1-3,7** **Example Connection Activity:** • Students can work to complete the writing process using various digital writing graphic organizers or planning documents (e.g., four-square, S.I.C., OREO, etc.)	**W.1.1-3,7** **Example Connection Activity:** • Students can work to complete the writing process using various digital writing graphic organizers or planning documents (e.g., four-square, S.I.C., OREO, etc.)	**W.2.1-3,7** **Example Connection Activity:** • Students can work to complete the writing process using various digital writing graphic organizers or planning documents (e.g., four-square, S.I.C., OREO, etc.)

Math	**SMP.1** **K.OA.1-3** **K.NBT.1** **Example Connection Activity:** • With guidance and support, students can write or illustrate clear directions for the sequence of steps needed to solve a mathematical problem	**SMP.1** **1.OA.1-2** **1.NBT.4-6** **Example Connection Activity:** • Students can write or illustrate clear directions for the sequence of steps needed to solve a mathematical problem	**SMP.1** **2.OA.1** **2.NBT.6-7** **2.NBT.9** **Example Connection Activity:** • Students can write or illustrate clear directions for the sequence of steps needed to solve a mathematical problem
Science	**Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions** **L.K.3B.2** **Example Connection Activity:** • Students can create a model habitat which demonstrates interdependence of plants and animals using an engineering design process to define the problem, design, construct, evaluate, and improve the habitat	**Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions** **L.1.4.3** **Example Connection Activity:** • Students can develop a set of steps for an agricultural problem such as pollination and a potential solution and use an engineering design process to define the problem, design, construct, evaluate, and improve the solution	**Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions** **L.2.4.2** **Example Connection Activity:** • Create a solution exemplified by animal adaptations to solve a human problem in a specific environment (e.g., snowshoes are like hare's feet or flippers are like duck's feet) and use an engineering design process to define the problem, design, construct, evaluate, and improve the solution

Social Studies	**H.K.2** **Example Connection Activity:** • Students can create a story board or map historical events or figures	**CR.1.2** **Example Connection Activity:** • Students can create a storyboard to explain customs or holidays which can become a graphic organizer for school holidays throughout the year	
Library			
Counseling			

AP.1A.6

AP.1A.6 Give **attribution** when using the ideas and creations of others while developing programs.

Using computers comes with a level of responsibility.

AP.1A.6a Students should credit **artifacts** that were created by others, such as pictures, music, and code.

Overarching Goal	**Give attribution to the ideas and creations of others**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can credit works created by others. (AP.1A.6, AP.1A.6a) With guidance and support: • Understand ideas and artifacts are owned by the people who originally created them (e.g., musicians own the music they create, etc.) • Cite the creator of ideas or artifacts when using them in my own work	**I can credit works created by others. (AP.1A.6, AP.1A.6a)** With guidance and support: • Understand ideas and artifacts are owned by the people who originally created them (e.g., musicians own the music they create, etc.) • Cite the creator of ideas or artifacts when using them in my own work	**I can credit works created by others. (AP.1A.6, AP.1A.6a)** • Understand ideas and artifacts are owned by the people who originally created them (e.g., musicians own the music they create, etc.) • Cite the creator of ideas or artifacts when using them in my own work

AP.1A.6 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**W.K.8** **RL/RI.K.1** **Example Connection Activities:** • With guidance and support, students can credit sources when answering questions and writing • With guidance and support, students can complete a graphic organizer to cite evidence when listening and discussing key details in a text	**RL/RI.1.1** **W.1.8** **Example Connection Activities:** • With guidance and support, students can give credit for sources in their writing and/or orally during presentations • With guidance and support, students can complete a graphic organizer to cite evidence when reading and discussing key details, central messages, and characters in a text	**RL/RI.2.1** **W.2.8** **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
Math	**K.MD.2-3** **K.G.5** **Example Connection Activities:** • Students can work together to compare measurable attributes of objects, classify, and count objects, or find examples of geometric shapes in everyday objects • Students can create presentations that represent their findings, making sure to follow all copyright laws	**1.MD.4** **1.NBT.4** **Example Connection Activities:** • Students can work together to organize, represent, and interpret data or solve real-world mathematical problems • Students can create presentations that represent their findings, making sure to follow all copyright laws	**2.MD.8a-b** **Example Connection Activities:** • Students can work together to solve real-world mathematical problems that include money or the use of a calendar • 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** **L.K.3B.2** **E.K.8B.3** **E.K.10.3** **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** **L.1.4.3** **P.1.6B.2** **E.1.10.3** **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** **L.2.4.2** **P.2.6.3** **E.2.8.6** **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		**H.1.1** **H.1.2** **Example Connection Activity:** • Students can reference historical events while presenting their work (e.g., pictures, video, storyboard)	
Library			**RES.CO.4.1** **Example Activity: (See *How Animals Meet Their Needs* in the 2-3 Library Lesson Plans)** • Read *Welcome Home, Bear* by Il Sung Na and have students discuss the different animal habitats • Students will be given a different animal to research using the DK FindOut! located in the MAGNOLIA database collection • Students will summarize the information found to complete the animal habitats digital graphic organizer page
Counseling			

AP.1A.7

AP.1A.7 Debug (identify and fix) errors in an algorithm or program that includes sequences and simple loops.

Algorithms or programs may not always work correctly.

AP.1A.7a Students should be able to use various strategies, such as changing the sequence of the steps, following the algorithm in a step-by-step manner, or trial and error to fix problems in algorithms and programs.

Overarching Goal	**Debug errors in programs**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can define debug. (AP.1A.7) With guidance and support: • Understand algorithms and programs may not always work correctly • Understand debug means to identify and correct errors in an algorithm or program	**I can define debug. (AP.1A.7)** With guidance and support: • Understand algorithms and programs may not always work correctly • Understand debug means to identify and correct errors in an algorithm or program	**I can define debug. (AP.1A.7)** • Understand algorithms and programs may not always work correctly • Understand debug means to identify and correct errors in an algorithm or program
I can debug an algorithm or program that contains sequences and simple loops. (AP.1A.7, AP.1A.7a) With guidance and support: • Test the algorithm or program to determine its success or failure • Use various strategies to identify the error in the algorithm or program (e.g., change the sequence of steps, follow the program step-by-step, etc.)	**I can debug an algorithm or program that contains sequences and simple loops. (AP.1A.7, AP.1A.7a)** With guidance and support: • Test the algorithm or program to determine its success or failure • Use various strategies to identify the error in the algorithm or program (e.g., change the sequence of steps, follow the program step-by-step, etc.)	**I can debug an algorithm or program that contains sequences and simple loops. (AP.1A.7, AP.1A.7a)** • Test the algorithm or program to determine its success or failure • Use various strategies to identify the error in the algorithm or program (e.g., change the sequence of steps, follow the program step-by-step, etc.)

• Correct problems in the algorithm or program so that it works correctly	• Correct problems in the algorithm or program so that it works correctly	• Correct problems in the algorithm or program so that it works correctly

AP.1A.7 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA			
Math		**SMP.1** **SMP.3** **Example Connection Activity:** • Students practice finding errors in math equations and justifying the correction	**SMP.1** **SMP.3** **Example Connection Activity:** • Students practice finding errors in math equations and justifying the correction

Science	**Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions** **L.K.3B.2** **Example Connection Activity:** • Students can create a model habitat which demonstrates interdependence of plants and animals using an engineering design process to define the problem, design, construct, evaluate, and improve the habitat	**Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions** **L.1.4.3** **Example Connection Activity:** • Students can develop a set of steps for an agricultural problem such as pollination and a potential solution and use an engineering design process to define the problem, design, construct, evaluate, and improve the solution	**Science & Engineering Practices: Asking Questions and Defining Problems; Develop and Use Models; Constructing Explanations and Designing Solutions** **L.2.4.2** **Example Connection Activity:** • Create a solution exemplified by animal adaptations to solve a human problem in a specific environment (e.g., snowshoes are like hare's feet or flippers are like duck's feet) and use an engineering design process to define the problem, design, construct, evaluate, and improve the solution
Social Studies			
Library			
Counseling			

AP.1A.8

AP.1A.8 Using correct terminology, describe steps taken and choices made during the **iterative process** of program development.

AP.1A.8a Students should be able to talk or write about the goals and expected outcomes of the programs they create and the choices that they made when creating programs.

Overarching Goal	**Describe steps taken and choices made during program development**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can describe the goals and expected outcomes of the program. (AP.1A.8, AP.1A.8a) With guidance and support: • Describe the goals and expected outcomes of the program • Use proper terminology • Present the goals and outcomes visually, orally, or in writing (e.g., coding journals, discussions with teacher, class presentation, etc.)	**I can describe the goals and expected outcomes of the program. (AP.1A.8, AP.1A.8a)** With guidance and support: • Describe the goals and expected outcomes of the program • Use proper terminology • Present the goals and outcomes visually, orally, or in writing (e.g., coding journals, discussions with teacher, class presentation, etc.)	**I can describe the goals and expected outcomes of the program. (AP.1A.8, AP.1A.8a)** • Describe the goals and expected outcomes of the program • Use proper terminology • Present the goals and outcomes visually, orally, or in writing (e.g., coding journals, discussions with teacher, class presentation, etc.)
I can explain the choices made when developing the steps of a program. (AP.1A.8, AP.1A.8a) With guidance and support: • Describe the choices made when creating the steps of a program	**I can explain the choices made when developing the steps of a program. (AP.1A.8, AP.1A.8a)** With guidance and support: • Describe the choices made when creating the steps of a program • Use proper terminology	**I can explain the choices made when developing the steps of a program. (AP.1A.8, AP.1A.8a)** • Describe the choices made when creating the steps of a program • Use proper terminology

• Use proper terminology • Present the choices made visually, orally, or in writing	• Present the choices made visually, orally, or in writing	• Present the choices made visually, orally, or in writing

AP.1A.8 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**SL.K.1-3** **Example Connection Activity:** • With guidance and support, students can participate in whole class discussions, turn and talks, and group discussions to talk and write about topics and readings	**SL.1.1-3** **Example Connection Activity:** • With guidance and support, students can participate in whole class discussions, turn and talks, and group discussions to talk and write about topics and readings	**SL.2.1-3** **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.1, 2, 3, 6** **K.OA.1-3** **Example Connection Activity:** • With guidance and support, students can utilize these Standards for Mathematical Practices when analyzing and justifying mathematical thinking and problem-solving	**SMP.1, 2, 3, 6** **1.NBT.4** **1.NBT.6** **Example Connection Activity:** • With guidance and support, students can utilize these Standards for Mathematical Practices when analyzing and justifying mathematical thinking and problem-solving	**SMP.1, 2, 3, 6** **2.NBT.7** **Example Connection Activity:** • With guidance and support, students can utilize these Standards for Mathematical Practices when analyzing and justifying mathematical thinking and problem-solving
Science			
Social Studies			

Library			
Counseling			

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.1A.1

IC.1A.1 Compare how people live and work before and after the implementation or adoption of new **computing technology**.

Computing technology has positively and negatively changed the way people live and work.

IC.1A.1a Students should be able to compare how people live and work before and after the implementation or adoption of new computing technology.

Overarching Goal	**Compare life and work before and after computing technologies**

LEARNING TARGETS		
KINDERGARTEN	FIRST GRADE	SECOND GRADE
I can explain how computing technologies help complete specific	**I can explain how computing technologies help complete specific**	**I can explain how computing technologies help complete specific**

tasks in school, work, and home. (IC.1A.1) With guidance and support: • Identify computing technologies used to complete tasks at school and home (e.g., find information on the internet, etc.) • Discover how computing technology is used to aid people in their careers • Explain how computing technologies help complete tasks at school, work, and home	**tasks in school, work, and home. (IC.1A.1)** With guidance and support: • Identify computing technologies used to complete tasks at school and home (e.g., find information on the internet, etc.) • Discover how computing technology is used to aid people in their careers • Explain how computing technologies help complete tasks at school, work, and home	**tasks in school, work, and home. (IC.1A.1)** • Identify computing technologies used to complete tasks at school and home (e.g., find information on the internet, etc.) • Discover how computing technology is used to aid people in their careers • Explain how computing technologies help complete tasks at school, work, and home
I can explain how those tasks would have been completed before technologies were developed. (IC.1A.1, IC.1A.1a) With guidance and support: • Explore how tasks at school, work, and home life were completed before computing technologies (e.g., drive to the library to find a book on a specific topic, etc.) • Examine the negative and positive effects of computing technologies used to complete tasks in work and daily life	**I can explain how those tasks would have been completed before technologies were developed. (IC.1A.1, IC.1A.1a)** With guidance and support: • Explore how tasks at school, work, and home life were completed before computing technologies (e.g., drive to the library to find a book on a specific topic, etc.) • Examine the negative and positive effects of computing technologies used to complete tasks in work and daily life	**I can explain how those tasks would have been completed before technologies were developed. (IC.1A.1, IC.1A.1a)** • Explore how tasks at school, work, and home life were completed before computing technologies (e.g., drive to the library to find a book on a specific topic, etc.) • Examine the negative and positive effects of computing technologies used to complete tasks in work and daily life

IC.1A.1 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**RI.K.9** **W.K.2** **W.K.6** **SL.K.4-6** **Example Connection Activities:** • With prompting and support, students can read two texts and use a graphic organizer (Venn Diagram) to compare and contrast life before and after the implementation of computer technology • With prompting and support students can explore/use different apps to dictate, draw, or write	**W.1.2** **W.1.6** **RI.1.9** **SL.1.4-6** **Example Connection Activities:** • Students can read two texts and use a graphic organizer (Venn Diagram) to compare and contrast life before and after the implementation of computer technology • With guidance and support students can explore/use different apps to produce and publish writing	**W.2.2** **W.2.6** **RI.2.9** **SL.2.4-6** **Example Connection Activities:** • Students can read two texts and use a graphic organizer (Venn Diagram) to compare and contrast life before and after the implementation of computer technology • With guidance and support students can explore/use different apps to produce and publish writing
Math		**1.MD.5a** **Example Connection Activity:** • Facilitate discussion on how the use of computers (e.g., calculators, virtual manipulatives, online banking, debit cards, cash registers, etc.) has made math more efficient and potentially more accessible	**2.MD.7-8** **Example Connection Activity:** • Facilitate discussion on how the use of computers (e.g., calculators, virtual manipulatives, online banking, debit cards, cash registers, etc.) has made math more efficient and potentially more accessible

Science			**E.2.8.5** **Example Connection Activity:** • Facilitate discussion on the development of technology to explore space and how it has changed over time
Social Studies	**H.K.1** **Example Connection Activity:** • Students can analyze the interaction of early Americans and how they lived before the use of technology	**H.1.1-2** **Example Connection Activity:** • Students can draw correlations to older forms of technology and how they impacted history (e.g., plow, car, radio, etc.) to how the internet is shaping society in the present	
Library			
Counseling	**B-LS 5** **B-LS 7** **Example Activity: How do I feel when I use technology?** • In small or large group classroom instruction, students will discuss the timeline of technology and express their thoughts and feelings about technology	**B-LS 5** **B-LS 7** **Example Activity: How do I feel when I use technology?** • In small or large group classroom instruction, students will discuss the timeline of technology and express their thoughts and feelings about technology	**B-LS 5** **B-LS 7** **Example Activity: How do I feel when I use technology?** • In small or large group classroom instruction, students will discuss the timeline of technology and express their thoughts and feelings about technology

IC.1A.2

IC.1A. 2 Work respectfully and responsibly with others online.

Online communication facilitates positive interactions, such as sharing ideas with many people, but the public and anonymous nature of online communication also allows intimidating and inappropriate behavior in the form of ***cyberbullying****.*

IC.1A.2a Students should demonstrate understanding of how to work with others online in a respectful and responsible way.

IC.1A.2b Students should be able to identify cyberbullying.

Overarching Goal	**Work respectfully with others online**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can demonstrate respect for others online. (IC.1A.2, IC.1A.2a) With guidance and support: • Describe what it means to be kind and respectful to others • Explain how respectful behaviors might be expressed online	**I can demonstrate respect for others online. (IC.1A.2, IC.1A.2a)** With guidance and support: • Describe what it means to be kind and respectful to others • Explain how respectful behaviors might be expressed online	**I can demonstrate respect for others online. (IC.1A.2, IC.1A.2a)** • Describe what it means to be kind and respectful to others • Explain how respectful behaviors might be expressed online
I can demonstrate responsible behaviors online (IC.1A.2, IC.1A.2a) With guidance and support: • Discuss information that should and should not be shared online (e.g., current location with strangers, oversharing, sharing	**I can demonstrate responsible behaviors online (IC.1A.2, IC.1A.2a)** With guidance and support: • Discuss information that should and should not be shared online (e.g., current location with strangers, oversharing, sharing	**I can demonstrate responsible behaviors online (IC.1A.2, IC.1A.2a)** • Discuss information that should and should not be shared online (e.g., current location with strangers, oversharing, sharing

information of others without permission, etc.) • Avoid strangers online • Recognize inappropriate websites	information of others without permission, etc.) • Avoid strangers online • Recognize inappropriate websites	information of others without permission, etc.) • Avoid strangers online • Recognize inappropriate websites
I can identify and report online interactions that are unkind or disrespectful. (IC.1A.2b) With guidance and support: • Recognize signs of cyberbullying • Consider how to respond appropriately to cyberbullying • Report cyberbullying immediately	**I can identify and report online interactions that are unkind or disrespectful. (IC.1A.2b)** With guidance and support: • Recognize signs of cyberbullying • Consider how to respond appropriately to cyberbullying • Report cyberbullying immediately	**I can identify and report online interactions that are unkind or disrespectful. (IC.1A.2b)** With guidance and support: • Recognize signs of cyberbullying • Consider how to respond appropriately to cyberbullying • Report cyberbullying immediately

IC.1A.2 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA	**SL.K.1-3** **SL.K.6** **RL/RI.K.1-2** **Example Connection Activity:** • Students can work collaboratively to create a multimedia presentation to retell the events of a story	**SL.1.1-3** **SL.1.6** **RL/RI.1.1-2** **Example Connection Activities:** • Students can work collaboratively to create a multimedia presentation to retell the events of a story • Students can use a discussion platform to respond to text-dependent questions and provide feedback to their peers	**SL.2.1-3** **SL.2.6** **RL/RI.2.1-2** **Example Connection Activities:** • Students can work collaboratively to create a multimedia presentation to retell the events of a story • Students can use a discussion platform to respond to text-dependent questions and provide feedback to their peers
Math			
Science			

Social Studies	**CI.K.1-2** **CI.2.1-3** **Example Connection Activities:** • Students can relate the concept of what a good citizen is with that of being respectful and responsible while online • Students can share their work in online collaborative spaces, being careful to avoid sharing inappropriate information • Students can compare being a good citizen in the local community to being a good citizen in the online community • Students can tell authority figures when rules and laws are not being followed		

Library			**DIG.CO.1.1** **DIG.CO.1.3** **Example Connection Activities: (See *Literature Appreciation* in the 2-3 Library Lesson Plans)** • Read *Libba: The Magnificent Musical Life of Elizabeth Cotten* by Laura Veirs and have students discuss the different elements of a non-fiction book • Students use Lexile's Find a Book, located in the MAGNOLIA database collection, to find other non-fiction books of interest on their levels • Students will write reviews or recommendations based on their chosen book

Counseling	**B-SMS 2** **B-LS 5** **B-LS 7** **B-SMS 9** **B-SS 10** **B-SS 6** **Example Connection Activities: Good Citizenship Online** • In small or large group classroom instruction, students will learn about bullying, cyberbullying, and offline/online communication • Students will discuss the respect, kindness and good citizenship in the online community • Students can demonstrate understanding by creating rules of online behavior, using a digital platform to create or find visuals online	**B-SMS 2** **B-LS 5** **B-SS 7** **B-SMS 9** **B-SS 10** **B-SS 6** **Example Connection Activities: Good Citizenship Online** • In small or large group classroom instruction, students will learn about bullying, cyberbullying, and offline/online communication • Students will discuss the respect, kindness and good citizenship in the online community • Students can demonstrate understanding by creating rules of online behavior, using a digital platform to create or find visuals online	**B-SMS 2** **B-LS 5** **B-LS 7** **B-SMS 9** **B-SS 10** **B-SS 6** **Example Connection Activities: Good Citizenship Online** • In small or large group classroom instruction, students will learn about bullying, cyberbullying, and offline/online communication • Students will discuss the respect, kindness and good citizenship in the online community • Students can demonstrate understanding by creating rules of online behavior, using a digital platform to create or find visuals online

IC.1A.3

IC.1A.3 Keep login information private and log off devices appropriately.

*People use **computing technology** in ways that can help or hurt themselves or others.*

IC.1A.3a Students should understand that some things like login details, their address, and other **personally identifiable information** is private (secret).

IC.1A.3b Students should know to always log off properly on any device used.

Overarching Goal	**Demonstrate appropriate protection of login information**

LEARNING TARGETS		
KINDERGARTEN	**FIRST GRADE**	**SECOND GRADE**
I can identify information that should be kept private. (IC.1A.3a) With guidance and support: • Identify personally identifiable information that should be kept secret (e.g., name, address, age, etc.) • Identify login information (e.g., usernames and passwords) that should be kept secret	**I can identify information that should be kept private. (IC.1A.3a)** With guidance and support: • Identify personally identifiable information that should be kept secret (e.g., name, address, age, etc.) • Identify login information (e.g., usernames and passwords) that should be kept secret	**I can identify information that should be kept private. (IC.1A.3a)** • Identify personally identifiable information that should be kept secret (e.g., name, address, age, etc.) • Identify login information (e.g., usernames and passwords) that should be kept secret
I can provide my login information used to access my device or software. (IC.1A.3a) With guidance and support: • Identify hardware and software that require login information	**I can provide my login information used to access my device or software. (IC.1A.3a)** With guidance and support: • Identify hardware and software that require login information	**I can provide my login information used to access my device or software. (IC.1A.3a)** • Identify hardware and software that require login information

• Practice using login information (if a single sign-on solution, such as Clever, is not used) • Understand login information is saved within a single sign-on solution, such as Clever (if applicable)	• Practice using login information (if a single sign-on solution, such as Clever, is not used) • Understand login information is saved within a single sign-on solution, such as Clever (if applicable)	• Practice using login information (if a single sign-on solution, such as Clever, is not used) • Understand login information is saved within a single sign-on solution, such as Clever (if applicable)
I can practice ways to protect my login information (IC.1A.3, IC.1A.3b) With guidance and support: • Practice logging off devices appropriately • Practice logging out of software appropriately • Understand login information is not to be shared with others	**I can practice ways to protect my login information (IC.1A.3, IC.1A.3b)** With guidance and support: • Practice logging off devices appropriately • Practice logging out of software appropriately • Understand login information is not to be shared with others	**I can practice ways to protect my login information (IC.1A.3, IC.1A.3b)** • Practice logging off devices appropriately • Practice logging out of software appropriately • Understand login information is not to be shared with others
	I can discuss the consequences of not keeping information safe (IC.1A.3) With guidance and support: • Discuss the consequences of personal identifiable information being shared with others • Discuss the consequences of login information being shared with others	**I can discuss the consequences of not keeping information safe (IC.1A.3)** • Discuss the consequences of personal identifiable information being shared with others • Discuss the consequences of login information being shared with others

IC.1A.3 | CONTENT AREA CONNECTIONS

CONTENT AREA	KINDERGARTEN	FIRST GRADE	SECOND GRADE
ELA			
Math			
Science			
Social Studies	**CI.K.1-2** **Example Connection Activities:** • Students can manage passwords and log out with the same "norms" as identifying and understanding the roles of citizenship • Students can compare and contrast privacy in the community to privacy online	**CI.1.1-3** **Example Connection Activity:** • Students can apply civic responsibility in the classroom to that of safety, law, and ethics on their devices	

Library			**DIG.CI.2.3** **Example Activity: (See *Literature Appreciation* in the 2-3 Library Lesson Plans)** • Read *Libba: The Magnificent Musical Life of Elizabeth Cotten* by Laura Veirs and have students discuss the different elements of a non-fiction book • Students use Lexile's Find a Book, located in the MAGNOLIA database collection, to find other non-fiction books of interest on their levels • Students will be given the MAGNOLIA password to be able to log into the site

Counseling	**B-LS 1** **B-LS 5** **B-LS 6** **B SMS 1** **S SMS 2** **Example Connection Activities: Security & Privacy** • In small or large group classroom instruction, students will discuss and learn about confidentiality, learn how to protect personal information, and gain a deeper understanding of their data privacy rights so they can advocate for themselves and others • In small or large group classroom instruction, students will read and discuss a text related to security and/or data privacy	**B-LS 1** **B-LS 5** **B-LS 6** **B SMS 1** **S SMS 2** **Example Connection Activities: Security & Privacy** • In small or large group classroom instruction, students will discuss and learn about confidentiality, learn how to protect personal information, and gain a deeper understanding of their data privacy rights so they can advocate for themselves and others • In small or large group classroom instruction, students will read and discuss a text related to security and/or data privacy	**B-LS 1** **B-LS 5** **B-LS 6** **B SMS 1** **S SMS 2** **Example Connection Activities: Security & Privacy** • In small or large group classroom instruction, students will discuss and learn about confidentiality, learn how to protect personal information, and gain a deeper understanding of their data privacy rights so they can advocate for themselves and others • In small or large group classroom instruction, students will read and discuss a text related to security and/or data privacy

GLOSSARY

Algorithm: a list of step-by-step instructions, procedures, or 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.

Composition: the act of combining smaller tasks into more complex tasks

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

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

Cyberbullying: sending, posting, or sharing negative, harmful, false, or mean content about someone else; it can include sharing personal or private information about someone else causing embarrassment or humiliation

Data visualizations: the representation of information, or data, in the form of a chart, diagram, picture, etc.

Decomposition: the breaking down of 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

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

External hardware: a hardware device that is installed outside of the computer, such as a keyboard, mouse, headphones, scanner, etc.

Functionality: the sum or any aspect of what a product, such as a software application or computing device, can do for a user

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

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)

Personally identifiable information: any data that could potentially identify a specific individual, such as name, address, phone number, etc.

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

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

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

Single sign-on solution: allows users to input just one name and password for access to multiple applications

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

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