Grade 1 Technology Enrichment

Unit Title: Unit 1 -- iPad Navigation and Digital Citizenship

Stage 1: Desired Results

Standards & Indicators:

NJSLS for Computer Science and Design Thinking

- 8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
- 8.1.2.NI.4: Explain why access to devices need to be secured.
- 8.1.2.IC.1: Compare how individuals live and work before and after the implementation of new computing technology.

NJSLS for Mathematics

- MP 1: Make sense of problems and persevere in solving them.
- MP 2: Reason abstractly and quantitatively.
- MP 6: Attend to precision.
- 1.OA.A.1: Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.A.2: Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.B.3: Apply properties of operations as strategies to add and subtract.
- 1.DL.1.4: Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

NJSLS for Career Readiness, Life Literacies, and Key Skills

- 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives.
- 9.4.2.CI.2: Demonstrate originality and inventiveness in work.
- 9.4.2.CT.2: Identify possible approaches and resources to execute a plan.
- 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive)
- 9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource.
- 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool.
- 9.4.2.TL.2: Create a document using a word processing application.
- 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools.
- 9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts.

Central Idea / Enduring Understanding:	**Essential/Guiding Question:**
Students will… ● Explain the parts of the iPad. ● Practice safe and unsafe behaviors when using a device. ● Recognize icons used to go on the Internet (Google Chrome, Safari) ● Understand what the Internet is and what you can do on the Internet. ● Navigate the Internet window using the close button, minimize/maximize, typing a website in	● What are the parts of an iPad and how do you practice safe and unsafe behaviors when using a device? ● How do you navigate an Internet window and websites on the Internet? ● How do you stay safe when you visit a website? ● What is a digital footprint and what information is OK to have in your digital footprint? ● What do you do when someone is mean to you online?

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the address bar, identify the characteristics typical of a hyperlink, navigate hyperlinks, and navigate a website. ● Understand that being safe when they visit websites is similar to staying safe in real life ● Learn to recognize websites that are good for them to visit ● Know when to ask an adult before they visit a particular website. ● Explore what information is appropriate to be put online. ● Learn that the information they put online leaves a digital footprint or “trail” and judge the nature of different types of digital footprints. ● Analyze online behaviors that could be considered cyberbullying, explain how to deal with a cyberbullying situation, and recognize the importance of engaging a trusted adult when they experience cyberbullying. ● Understand the function of keywords and keyword searches. ● Learn a step-by-step procedure for selecting suitable keywords, and apply their chosen keywords to find the information they are looking for on the Internet. ● Identify and explore different features of an informational website ● Understand that not everyone will rate a website the same way. ● Evaluate whether they like or dislike features of a site.	● What are keywords and how do you use them to give you the best search results? ● What makes a website the right site for you?
Content: ● iPad ● Internet ● Internet navigation ● Internet safety ● Digital footprint ● Cyberbullying ● Keywords ● Evaluating websites	**Skills (Objectives):** ● Explain the parts of the iPad and practice safe and unsafe behaviors when using a device. ● Navigate the Internet window using the close button, minimize/maximize, typing a website in the address bar, identify the characteristics typical of a hyperlink, navigate hyperlinks, and navigate a website. ● Understand that being safe when they visit websites is similar to staying safe in real life, learn to recognize websites that are good for them to visit, and know when to ask an adult before they visit a particular website. ● Explore what information is appropriate to be put online, learn that the information they put online leaves a digital footprint or “trail,” and judge the nature of different types of digital footprints. ● Analyze online behaviors that could be considered cyberbullying, explain how to deal with a cyberbullying situation, and recognize the

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	importance of engaging a trusted adult when they experience cyberbullying. ● Understand the function of keywords and keyword searches, learn a step-by-step procedure for selecting suitable keywords, and apply their chosen keywords to find the information they are looking for on the Internet. ● Identify and explore different features of an informational website, understand that not everyone will rate a website the same way, and evaluate whether they like or dislike features of a site.

Interdisciplinary Connection(s):

NJSLS for Language Arts Literacy

- RL.CI.1.2. - Determine the central message and retell a sequence of events in literary texts (e.g., who, what, where, when, why, how).
- RL.IT.1.3. - Describe characters, settings, and major event(s) in a story, using key details
- RL.TS.1.4. -With prompting and support, explain major differences between books that tell stories and books that give information recognizing organization and features of literary texts (e.g., follows a story line, chronology of events, interprets illustrations) while drawing on a wide reading of a range of text types.
- RI.CR.1.1. - Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how).
- RI.CI.1.2. - Determine the main topic and retell a series of key details in informational texts (e.g., who, what, where, when, why, how).
- RI.IT.1.3. - Describe relationships among pieces of information (e.g., sequence of events, steps in a process, cause-effect and compare-contrast relationships) within a text.
- RI.TS.1.4. - With prompting and support, explain major differences between books that tell stories and books that give information, identifying various text features (e.g., heading, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text while drawing on a wide reading of a range of text types.
- L.RF.1.4.A. - Read grade-level text with purpose and understanding.
- W.WR.1.5 - With prompting and support, generate questions through shared research about a topic and determine possible sources to obtain information on that topic.
- W.SE.1.6. - With guidance and support from adults, gather and select information from multiple sources to answer a question about a topic.

NJSLS for Social Studies

- 6.1.5.EconNM.4: Explain how creativity and innovation resulted in scientific achievement and inventions in many cultures during different historical periods.
- 6.1.2.CivicsPI.4: Explain how all people, not just official leaders, play important roles in a community.
- 6.1.5.EconGE.1: Explain how the development of communication systems has led to increased collaboration and the spread of ideas throughout the United States and the world.
- 6.1.5.CivicsHR.4: Identify actions that are unfair or discriminatory, such as bullying, and propose solutions to address such actions.

Stage 2: Assessment Evidence

Performance Task(s):	Other Evidence:
● Student classwork/projects ● Student demonstration ● Class/partner/group discussion	● Teacher observation ● Student/Teacher conference ● Unit Assessments [Web][PDF]

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• Self-assessments • Peer-assessments • Turn and Talk • Various class activities and games • Self-reflection • Exit tickets/questions • Staying Safe Online Assessment [PDF] • Follow the Digital Trail Assessment [PDF] • Screen Out the Mean Assessment [PDF] • Using Keywords Assessment [PDF] • Sites I Like Assessment [PDF]	
Stage 3: Learning Plan	
Learning Opportunities/Strategies: Lesson 1: Parts of the iPad and using them properly Students will learn about the parts of the iPad, home screen and the basic terms, such as the home button, apps, etc. Students will learn what the Internet is and what you can do on the Internet. They will learn which icons are used to go on the Internet. Students will learn the main buttons and tools used to navigate an Internet window. They will learn how to type a website address into the address bar and hit return to make it go to the website. Students will learn what it means to have safe and unsafe behaviors when using a device.	**Resources:** Lesson 1: Parts of the computer and using them properly • What are Computers for Kids | Intro to Com…
Lesson 2: Navigating websites and hyperlinks Students will learn how to click hyperlinks to navigate to websites. To go back to a previous page, students will locate and use the “back button.” Students will locate “play” or “start” buttons, activity screen vs. ads, and important information. They will locate and use the scroll bar to navigate up and down on the website. Students will learn the characteristics of a hyperlink. They will learn to look for blue words, underlined words, or when the mouse pointer changes to a hand.	Lesson 2: Navigating websites and hyperlinks • Navigating various components of a website: Technology II - Vocabulary for Kids - Interne…
Lesson 3: Staying safe online Students understand that they should stay safe online by choosing websites that are good for them to visit, and avoid sites that are not appropriate for them. Students learn the similarities between staying safe in the real world and when visiting websites. They learn about the website traffic light and complete an activity where they match statements about websites to the correct safety level of the site. They will also play an interactive game and consider how to determine which websites are right for them.	Lesson 3: Staying safe online • Internet Safety Tips for Kids

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Lesson 4: Follow the digital trail Students learn that the information they put online leaves a digital footprint or "trail." This trail can be big or small, helpful or hurtful, depending on how they manage it. Students follow the digital information trails of two fictional animals. They make observations about the size and content of each trail, and connect these observations by thinking critically about what kinds of information they want to leave behind.	Lesson 4: Follow the digital trail ● **Digital Trail Work Page** ● **Follow the Digital trail lesson resources**
Lesson 5: Screen out the mean Students learn that children sometimes can act like bullies when they are online. They explore what cyberbullying means and what they can do when they encounter it. Students first read a scenario about mean online behavior. They then discuss what cyberbullying is, how it can make people feel, and how to respond. Then they use their knowledge to create a simple tip sheet on cyberbullying. Students recognize that it is essential to tell a trusted adult if something online makes them feel angry, sad, or scared.	Lesson 5: Screen out the mean ● Cyberbullying explanation video: Is it Cyberbullying? Protect Yourself Rules - Cyber Bullying
Lesson 6: Using keywords Students understand that keyword searching is an effective way to locate information on the Internet. They learn how to select keywords to produce the best search results. First, students learn to identify their research goals and choose the best keywords to achieve those goals. Then they apply their knowledge by using their keywords in a search. Students examine their search results and observe how a good choice of keywords can get them the information they want.	Lesson 6: Using keywords ● Using Keywords online: Using Keywords
Lesson 7: Sites I like Students explore and evaluate an informational website for children. Students discover that people's opinions about the quality and usefulness of a site will vary. As a class, students view a website and identify features that they like and those they do not like. Using the Rate My Site Student Handout, they then explore and rate another site on their own. Students compare responses and discuss their similarities and differences.	Lesson 7: Sites I like ● **Animal Search National Geographic** ● **https://www.kiddle.co/**

Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation.

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Adaptation of materials and requirements Elevated text or question complexity	Varying instructional strategies In-class interventions	**Materials** Provide pictures	**Materials** Decreased text or question complexity

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Independent student options Projects completed individually or with partners Self-selection of research Open-ended activities Expert mentorship	Compacting activity Extend or abbreviate duration of assignments	Provide text in alternative formats, such as large print, audio formats, or digital text Use peer readers Permit highlighting of text List discussion questions prior to reading text Vocabulary lists and/or study guides Provide lecture notes/outline Provide model or example **Environment** Reduce visual or auditory distractions Preferential seating Post a visual schedule Emphasize multi-sensory learning **Directions** Use oral, recorded, and/or printed directions with pictures Highlight key words in directions Give brief and concrete directions Have student verbalize steps Repeat, clarify, or reword directions **Time**	Provide page numbers or highlighted texts Shorten assignments to focus on key concepts **Grading** Provide partial grade based on individual progress or effort Use recognition tests (true-false, multiple choice, or matching) instead of short answer Provide a vocabulary list with definitions Modified rubrics

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		Alert students before transitions Provide additional time for tasks Extra response time	

Unit Title: Unit 2 -- Applications

Stage 1: Desired Results

Standards & Indicators:

NJSLS for Computer Science and Design Thinking

- 8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
- 8.1.2.NI.4: Explain why access to devices need to be secured.
- 8.1.2.IC.1: Compare how individuals live and work before and after the implementation of new computing technology.

NJSLS for Mathematics

- MP 1: Make sense of problems and persevere in solving them.
- MP 2: Reason abstractly and quantitatively.
- MP 6: Attend to precision.
- 1.OA.A.1: Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.A.2: Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.B.3: Apply properties of operations as strategies to add and subtract.
- 1.DL.1.4: Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

NJSLS for Career Readiness, Life Literacies, and Key Skills

- 9.4.2.CI.2: Demonstrate originality and inventiveness in work.
- 9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource.
- 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool.
- 9.4.2.TL.2: Create a document using a word processing application.
- 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools.

Central Idea / Enduring Understanding:	**Essential/Guiding Question:**
Students will… ● Learn how to take a test on a device. ● Learn how to create a new document and type in it. ● Understand the function of the backspace key. ● Understand how to use the return key in a doc. ● Learn how to use shift and caps lock “power” keys.	● How do you take a test on a device? ● How do you create a doc and type in a doc? ● How do you use the backspace key? ● How do you use the return key in a doc? ● How do you use shift or caps lock to capitalize a letter? ● How do you type a sentence with proper sentence structure?

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- Type name, simple words and sentences using proper spacing, capitalization, and punctuation.
- Understand how to use the tools in the toolbar, such as changing size, style, color, and alignment.
- Understand basic troubleshooting techniques, such as using the undo, backspace key, refresh button, etc.

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- What are the common tools in the toolbar and how do you use them?
- How do you fix mistakes in a doc?

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Content:

- Google Docs
- Cursor
- Power keys
- Toolbar

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Skills (Objectives):

- Use test taking strategies to complete practice tests on an iPad.
- Create a new Google Doc and identify the cursor.
- Identify and use the backspace key.
- Identify and use the return key.
- Identify and use the shift key and caps lock key.
- Type name, simple words and sentences using proper spacing, capitalization, and punctuation.
- Explain and use the tools in the toolbar, such as changing size, style, color, and alignment.
- Use basic troubleshooting techniques, such as using the undo, backspace key, refresh button, etc.

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Interdisciplinary Connection(s):

NJSLS for Language Arts Literacy

- RI.CR.1.1. Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how)
- RI.MF.1.6. With prompting and support, use text features (eg.g, diagrams, tables, animations) to describe key ideas.
- RI.CT.1.9. Identify similarities in and differences between two informational texts on the same topic (e.g., characters, experiences, illustrations, descriptions, or procedures)
- W.WR.1.5. With prompting and support, generate questions through shared research about a topic and determine possible sources to obtain information on that topic.
- SL.PE.1.1. Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
- SL.II.1.2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL.ES.1.3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
- SL.PI.1.4. Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
- SL.AS.1.6. Produce complete sentences when appropriate to task and situation.
- L.WF.1.1. Demonstrate command of the conventions of writing (including those proficiencies listed in L.WF.K.1).
- L.WF.1.2. Demonstrate command and use of the conventions of writing (including those proficiencies listed in L.WF.K.3).

NJSLS for Science

- K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

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- K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

NJSLS for Social Studies

- 6.1.5.EconNM.4: Explain how creativity and innovation resulted in scientific achievement and inventions in many cultures during different historical periods.
- 6.1.5.EconGE.1: Explain how the development of communication systems has led to increased collaboration and the spread of ideas throughout the United States and the world.
- 6.1.5.CivicsHR.4: Identify actions that are unfair or discriminatory, such as bullying, and propose solutions to address such actions.

Stage 2: Assessment Evidence

Performance Task(s):	Other Evidence:
• Student classwork/projects • Student demonstration • Class/partner/group discussion • Self-assessments • Peer-assessments • Turn and Talk • Various class activities and games • Self-reflection • Exit tickets/questions • Student presentations	• Teacher observation • Student/Teacher conference

Stage 3: Learning Plan

Learning Opportunities/Strategies:	Resources:
Lesson 1: Test taking strategies Students will learn the strategies needed to take a test using an iPad. They will learn how to login to a practice test and how to navigate through questions and testing windows. Students will also learn test taking strategies. They will learn to look for radio buttons (“circle answer choices”), multiple answer boxes (“square answer choices”), short answer text box, etc. to determine how to answer the question.	Lesson 1: Test taking strategies • Map testing app • Map Testing preview video • Map Testing practice test
Lesson 2: Create a Doc and typing in a Doc Students will learn how to create a new document and type their name into a word processor. They will look for the cursor, or the “blinking line,” that shows where the words appear.	Lesson 2: Create a Doc and typing in a Doc • Google Docs app • Keyboard accessibility app
Lesson 3: Using the backspace key Students will learn how to create a new document and type their name into a word processor. They will look for the cursor, or the “blinking line,” that shows where the words appear. Students will learn to type words into a word processor, such as sight words or vocab words. They will learn how to use the backspace key to erase.	Lesson 3: Using the backspace key • Google Docs app • Keyboard accessibility app

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Lesson 4: Using return key in a Doc Students will learn to use the return key to move the cursor down to the next line.	Lesson 4: Using return key in a Doc ● Google Docs app ● Keyboard accessibility app
Lesson 5: Using shift key and caps lock key Students will learn how to use the shift key and caps lock to make a capital letter.	Lesson 5: Using shift key and caps lock key ● Google Docs app ● Keyboard accessibility app
Lesson 6: Typing sentences using proper sentence structure Students will learn to type a sentence using proper spacing, make capital letters, and period at the end of a sentence.	Lesson 6: Typing sentences using proper sentence structure ● Google Docs app ● Keyboard accessibility app
Lesson 7: Using the toolbar Students will learn the commonly used tools in a toolbar, such as changing the size, style, color, and alignment.	Lesson 7: Using the toolbar ● Google Docs app
Lesson 8: Troubleshooting techniques Students will learn basic troubleshooting techniques, such as using the undo, backspace key, refresh button, etc.	Lesson 8: Troubleshooting techniques ● Safari browser

Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation.

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Adaptation of materials and requirements Elevated text or question complexity Independent student options Projects completed individually or with partners Self-selection of research Open-ended activities Expert mentorship	Varying instructional strategies In-class interventions Compacting activity Extend or abbreviate duration of assignments	**Materials** Provide pictures Provide text in alternative formats, such as large print, audio formats, or digital text Use peer readers Permit highlighting of text List discussion questions prior to reading text Vocabulary lists and/or study guides Provide lecture notes/outline Provide model or example **Environment** Reduce visual or auditory distractions	**Materials** Decreased text or question complexity Provide page numbers or highlighted texts Shorten assignments to focus on key concepts **Grading** Provide partial grade based on individual progress or effort Use recognition tests (true-false, multiple choice, or matching) instead of short answer Provide a vocabulary list with definitions Modified rubrics

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		Preferential seating Post a visual schedule Emphasize multi-sensory learning **Directions** Use oral, recorded, and/or printed directions with pictures Highlight key words in directions Give brief and concrete directions Have student verbalize steps Repeat, clarify, or reword directions **Time** Alert students before transitions Provide additional time for tasks Extra response time	

Unit Title: Unit 3 -- Coding

Stage 1: Desired Results

Standards & Indicators:

NJSLS for Computer Science and Design Thinking

- 8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
- 8.1.2.NI.4: Explain why access to devices need to be secured.
- 8.1.2.IC.1: Compare how individuals live and work before and after the implementation of new computing technology.

NJSLS for Mathematics

- MP 1 Make sense of problems and persevere in solving them.
- MP 2 Reason abstractly and quantitatively.

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- MP 6 Attend to precision.
- 1.OA.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.A.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.B.3 Apply properties of operations as strategies to add and subtract.
- 1.DL.A.1 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

NJSLS for Career Readiness, Life Literacies, and Key Skills

- 9.2.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job.
- 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives.
- 9.4.2.CI.2: Demonstrate originality and inventiveness in work.
- 9.4.2.CT.2: Identify possible approaches and resources to execute a plan.
- 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
- 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool.
- 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content.
- 9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts.

Central Idea / Enduring Understanding:

Students will…

- Understand that computers are machines that follow instructions called “code.”
- Relate the experience of completing coding challenges to a computer following instructions given by a computer programmer.
- Identify and use code commands, such as move forward, backward, and turn.
- Identify and use loops to control repeated movement of something.
- Identify and use special action commands, such as shrink, grow, or magic, that are unique to different coding challenges and programs.
- Program a robot mouse and virtual characters to follow a set of instructions.
- Learn debugging strategies.
- Use strategies in critical thinking, problem solving, creativity, communication, and collaboration to solve various coding challenges.

Essential/Guiding Question:

- What is an algorithm?
- What is sequencing?
- What are loops?
- What are special action commands and how do you use them?
- How do you debug your program when it is not working properly?

Content:

- Computer programmer
- Computer program
- Code
- Command
- Algorithm
- Sequence
- Debug

Skills (Objectives):

- Understand that computer use algorithms and sequencing to follow directions.
- Identify and use code commands, such as move forward, backward, turn left, turn right to code a robot mouse to follow a set of instructions.
- Identify and use loops to control patterned or repeated movement.

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	● Identify and use forward and turn commands in Scratch Jr app to have a character follow a set of instructions. ● Identify and use special action commands to control different types of movements, such as shrink, grow, and talk. ● Identify and use walk and jump commands to control the movement of Awbie. ● Identify and use hand, magic, and repeat commands to control the movement of Awbie. ● Apply strategies in critical thinking, problem solving, creativity, communication, and collaboration to solve various coding challenges.

Interdisciplinary Connection(s):

NJSLS for Language Arts Literacy

- RI.CR.1.1. Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how)
- RI.MF.1.6. With prompting and support, use text features (eg.g, diagrams, tables, animations) to describe key ideas.
- RI.CT.1.9. Identify similarities in and differences between two informational texts on the same topic (e.g., characters, experiences, illustrations, descriptions, or procedures)
- W.WR.1.5. With prompting and support, generate questions through shared research about a topic and determine possible sources to obtain information on that topic.
- SL.PE.1.1. Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
- SL.II.1.2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL.ES.1.3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
- SL.PI.1.4. Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
- SL.AS.1.6. Produce complete sentences when appropriate to task and situation.
- L.WF.1.1. Demonstrate command of the conventions of writing (including those proficiencies listed in L.WF.K.1).
- L.WF.1.2. Demonstrate command and use of the conventions of writing (including those proficiencies listed in L.WF.K.3).

NJSLS for Science

- K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

NJSLS for Social Studies

- 6.1.5.EconNM.4: Explain how creativity and innovation resulted in scientific achievement and inventions in many cultures during different historical periods.
- 6.1.5.EconGE.1: Explain how the development of communication systems has led to increased collaboration and the spread of ideas throughout the United States and the world.
- 6.1.5.CivicsHR.4: Identify actions that are unfair or discriminatory, such as bullying, and propose solutions to address such actions.

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Stage 2: Assessment Evidence	
Performance Task(s): ● Student classwork/projects ● Student demonstration ● Class/partner/group discussion ● Self-assessments ● Peer-assessments ● Turn and Talk ● Various class activities and games ● Self-reflection ● Exit tickets/questions	**Other Evidence:** ● Teacher observation ● Student/Teacher conference
Stage 3: Learning Plan	
Learning Opportunities/Strategies:	**Resources:**
Lesson 1: Understanding algorithms and sequencing Students will review what is computer programming and what is a command. They will learn about algorithms and sequencing. They will learn that computers are machines that follow a set of instructions called an algorithm. Students will learn how to create an algorithm. They will use strategies in critical thinking, problem solving, creativity, communication, and collaboration to complete programming challenges.	Lesson 1: Understanding algorithms and sequencing ● Robot Mouse kit
Lesson 2: Writing algorithms to code a robot mouse Students will learn to write an algorithm for the robot mouse to follow. They will use the directional arrows to tell the robot mouse where to go, such as forward, backward, left, and right. They will use complete programming challenges using the robot mouse by changing the tiles and mouse/cheese placement on the grid.	Lesson 2: Writing algorithms to code a robot mouse ● Robot Mouse kit
Lesson 3: Using loops Students will learn the basics of computer programming through the Hour of Code - Classic Maze. They will learn how to apply some basic computer commands, such as move forward turn, to control the movement of their angry bird to get to the pig. In this lesson, they will also learn the concept of a loop. They use the repeat command to do actions in a loop. Students will use strategies in critical thinking, problem solving, and debugging to complete coding puzzles.	Lesson 3: Using loops ● code.org
Lesson 4: Learning the forward and turn commands in Scratch Jr app Students will learn the basics of computer programming through the Scratch Jr app. They will learn some basic computer commands, such as move forward and turn to control the movement of their scratch cat in the app. Students will use strategies in creativity, critical thinking,	Lesson 4: Learning the forward and turn commands in Scratch Jr app ● Scratch Jr app

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problem solving, and debugging to determine the way they want to make their scratch cat move on the screen.	
Lesson 5: Using special action commands in Scratch Jr app Students will learn the more advanced commands of computer programming through the Scratch Jr app. They will learn some special action commands, such as shrink, grow, and talk to control the movement of their scratch cat in the app. Students will use strategies in creativity, critical thinking, problem solving, and debugging to complete coding challenges.	Lesson 5: Using special action commands in Scratch Jr app ● Scratch Jr app
Lesson 6: Use Directional logic to move a pawn Students will code a pawn to maneuver through a set of challenges creating a string of coded language. Students will use strategies to determine direction and distance while coding.	Lesson 6: Using walk and jump commands to code Awbie ● Blockly
Lesson 7: Use Directional logic to move a pawn with repeatable commands Students will code a pawn to maneuver through a set of challenges creating a string of coded language. Students will use strategies to determine direction and distance while coding. Include use of repeatable command structure within code.	Lesson 7: Using hand, magic, and repeat commands to code Awbie ● Blockly

Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation.

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Adaptation of materials and requirements Elevated text or question complexity Independent student options Projects completed individually or with partners Self-selection of research Open-ended activities Expert mentorship	Varying instructional strategies In-class interventions Compacting activity Extend or abbreviate duration of assignments	**Materials** Provide pictures Provide text in alternative formats, such as large print, audio formats, or digital text Use peer readers Permit highlighting of text List discussion questions prior to reading text Vocabulary lists and/or study guides Provide lecture notes/outline Provide model or example	**Materials** Decreased text or question complexity Provide page numbers or highlighted texts Shorten assignments to focus on key concepts **Grading** Provide partial grade based on individual progress or effort Use recognition tests (true-false, multiple choice, or matching) instead of short answer

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		Environment Reduce visual or auditory distractions Preferential seating Post a visual schedule Emphasize multi-sensory learning **Directions** Use oral, recorded, and/or printed directions with pictures Highlight key words in directions Give brief and concrete directions Have student verbalize steps Repeat, clarify, or reword directions **Time** Alert students before transitions Provide additional time for tasks Extra response time	Provide a vocabulary list with definitions Modified rubrics

Unit Title: Unit 4 -- STEAM

Stage 1: Desired Results

Standards & Indicators:

NJSLS for Computer Science and Design Thinking

- 8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
- 8.1.2.NI.4: Explain why access to devices need to be secured.
- 8.1.2.IC.1: Compare how individuals live and work before and after the implementation of new computing technology.

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NJSLS for Mathematics

- MP 1 Make sense of problems and persevere in solving them.
- MP 2 Reason abstractly and quantitatively.
- MP 6 Attend to precision.
- 1.OA.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.A.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- 1.OA.B.3 Apply properties of operations as strategies to add and subtract.
- 1.DL.A.1 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
- 1.G.A.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
- 1.G.A.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.
- 1.G.A.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of.

NJSLS for Career Readiness, Life Literacies, and Key Skills

- 9.2.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job.
- 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives.
- 9.4.2.CI.2: Demonstrate originality and inventiveness in work.
- 9.4.2.CT.2: Identify possible approaches and resources to execute a plan.
- 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
- 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools.
- 9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts.

Central Idea / Enduring Understanding:

Students will…

- Understand that different track shapes affect marble movement when building a roller coaster.
- Understand that track position affects if an object rolls and how fast it will roll when building a roller coaster.
- Understand the basic concepts of architecture and design to build something using brick pieces.
- Understand the basic concepts of electricity and circuits.
- Understand how to use physical drawing tools and technology together to solve problems.
- Understand how to use physical number tiles and technology together to solve problems.
- Understand how to use physical shape pieces and technology to make tangrams and solve problems.
- Use strategies in critical thinking, problem solving, creativity, communication, and collaboration to

Essential/Guiding Question:

- How do different track shapes affect marble movement when building a roller coaster?
- How does track position affect if an object rolls and how fast it will roll when building a roller coaster
- How are concepts of architecture and design used to build something using brick pieces?
- What is electricity and how do circuits work?
- How do you use physical drawing tools, physical pieces, and technology together to solve problems?
- How do you use critical thinking, problem solving, communication, and collaboration skills effectively?

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solve various STEM themed problems, puzzles, and challenges.	
Content: ● Architecture ● Engineering ● Design ● Physical science ● Gravity ● Momentum ● Electricity ● Circuits ● Drawing tools ● Numbers ● Shapes	**Skills (Objectives):** ● Understand and apply the basic concepts of architecture, engineering, design, and physical science to understand that different track shapes affect marble movement when building a roller coaster. ● Understand and apply the basic concepts of architecture, engineering, design, and physical science to understand that track position affects if an object rolls and how fast it will roll when building a roller coaster. ● Understand and apply the basic concepts of architecture and design to build something using brick pieces. ● Understand and apply the basic concepts of electricity and circuits. ● Understand and apply how to use physical drawing tools and technology together to solve problems. ● Understand and apply how to use physical number tiles and technology together to solve problems. ● Understand and apply how to use physical shape pieces and technology to make tangrams and solve problems. ● Apply strategies in critical thinking, problem solving, creativity, communication, and collaboration to solve various STEM themed problems, puzzles, and challenges.

Interdisciplinary Connection(s):

NJSLS for Language Arts Literacy

- RI.CR.1.1. Ask and answer questions about key details in an informational text (e.g., who, what, where, when, why, how)
- RI.MF.1.6. With prompting and support, use text features (eg.g, diagrams, tables, animations) to describe key ideas.
- RI.CT.1.9. Identify similarities in and differences between two informational texts on the same topic (e.g., characters, experiences, illustrations, descriptions, or procedures)
- W.WR.1.5. With prompting and support, generate questions through shared research about a topic and determine possible sources to obtain information on that topic.
- SL.PE.1.1. Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
- SL.II.1.2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL.ES.1.3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
- SL.PI.1.4. Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
- SL.AS.1.6. Produce complete sentences when appropriate to task and situation.
- L.WF.1.1. Demonstrate command of the conventions of writing (including those proficiencies listed in L.WF.K.1).

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- L.WF.1.2. Demonstrate command and use of the conventions of writing (including those proficiencies listed in L.WF.K.3).

NJSLS for Science

- K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

NJSLS for Social Studies

- 6.1.5.EconNM.4: Explain how creativity and innovation resulted in scientific achievement and inventions in many cultures during different historical periods.
- 6.1.5.EconGE.1: Explain how the development of communication systems has led to increased collaboration and the spread of ideas throughout the United States and the world.
- 6.1.5.CivicsHR.4: Identify actions that are unfair or discriminatory, such as bullying, and propose solutions to address such actions.

Stage 2: Assessment Evidence

Performance Task(s):	Other Evidence:
• Student classwork/projects • Student demonstration • Class/partner/group discussion • Self-assessments • Peer-assessments • Turn and Talk • Various class activities and games • Self-reflection • Exit tickets/questions	• Teacher observation • Student/Teacher conference

Stage 3: Learning Plan

Learning Opportunities/Strategies:	Resources:
Lesson 1: Using shapes to solve problems Students will use what they know about different shapes and composite shapes to create and solve composite shape shadows with a buddy	Lesson 1: Using shapes to solve problems • Pattern Blocks Shape Maker
Lesson 2: Track position affects if an object rolls Students will learn how the track position affects the rolling disk when making a real-life roller coaster. They will design a roller coaster using the Engineer-A-Coaster kit. They will use strategies in critical thinking, problem solving, and creativity to complete roller coaster challenges.	Lesson 2: Track position affects if an object rolls • Engineer-A-Coaster kit
Lesson 3: Track placement affects speed of rolling object Students will learn how the track position affects the speed of the rolling disk when making a real-life roller coaster. They will design a roller coaster using the Engineer-A-Coaster kit. They will use strategies in critical	Lesson 3: Track placement affects speed of rolling object • Engineer-A-Coaster kit

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thinking, problem solving, and creativity to complete roller coaster challenges.	
Lesson 4: Build a marble maze using brick pieces Students will use the concepts learned from the marble roller coaster to create a marble maze using the brick building kit The marble will roll on a horizontal plane while slightly tilting it back and forth.	Lesson 4: Build a marble maze using brick pieces ● Brick Building Kit
Lesson 5: Understanding electricity and circuits Students will learn how electricity and circuits work using the snap circuit kit. They will use strategies in critical thinking, problem solving, creativity, communication, and collaboration to complete circuit challenges.	Lesson 5: Understanding electricity and circuits ● Snap Circuit Kit
Lesson 6: Ready Jet Go Engineering Students will learn about building and engineering tools. The students will then create their own structures that can withstand weather occurrences.	Lesson 6: Ready Jet Go Engineering ● https://pbskids.org/readyjetgo/games/base-builder ● I Want To Be A Construction Worker - Kids …
Lesson 7: Constructing a hydroponic farm Students will construct a hydroponic farm on the Feed the Fidgits game. Students will learn about the needs of plants and alternate ways to grow them.	Lesson 7: Ready Jet Go Engineering ● https://pbskids.org/designsquad/games/feed_fidgits/ ● Who Needs Dirt?: Crash Course Kids #27.1
Lesson 8: Ready Jet Go Engineering Students will design a space rover for use on various planets. Students will discover how gravity impacts engineering requirements.	Lesson 8: Ready Jet Go Engineering ● https://pbskids.org/readyjetgo/games/rover-maker ● ISS - International Space Station - Inside IS…

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Adaptation of materials and requirements Elevated text or question complexity Independent student options Projects completed individually or with partners Self-selection of research Open-ended activities Expert mentorship	Varying instructional strategies In-class interventions Compacting activity Extend or abbreviate duration of assignments	**Materials** Provide pictures Provide text in alternative formats, such as large print, audio formats, or digital text Use peer readers Permit highlighting of text List discussion questions prior to reading text Vocabulary lists and/or study guides	**Materials** Decreased text or question complexity Provide page numbers or highlighted texts Shorten assignments to focus on key concepts **Grading** Provide partial grade based on individual progress or effort Use recognition tests (true-false, multiple choice,

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		Provide lecture notes/outline Provide model or example **<u>Environment</u>** Reduce visual or auditory distractions Preferential seating Post a visual schedule Emphasize multi-sensory learning **<u>Directions</u>** Use oral, recorded, and/or printed directions with pictures Highlight key words in directions Give brief and concrete directions Have student verbalize steps Repeat, clarify, or reword directions **<u>Time</u>** Alert students before transitions Provide additional time for tasks Extra response time	or matching) instead of short answer Provide a vocabulary list with definitions Modified rubrics

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Pacing Guide

Grade 1

Units	Unit TOTAL*	Cumulative TOTAL**
Unit 1 – iPad Navigation and Digital Citizenship	**7 days**	**7 days**
Unit 2 – Applications	**8 days**	**15 days**
Unit 3 – Coding	**7 days**	**22 days**
Unit 4 – STEM	**8 days**	**30 days**
		30 days

* Unit Total is inclusive of introduction, instruction, assessment for that particular topic.

** Cumulative Total is a running total, inclusive of prior and current topics.