



### Kindergarten Technology

**Course Description:** Technology at Wall Township employs an integrated approach where students learn to harness the power of technology for learning, creativity, and innovation to develop and deepen knowledge and understanding not just within the discipline of computer science, but also within multiple disciplines throughout the curriculum. This curriculum provides the base from which to develop the skills and knowledge needed to be successful communicators, problem-solvers, global citizens, and innovators.

### Course Sequence & Pacing

Unit Title	MP/Weeks
<p><b>Unit 1: Digital Communication</b> This unit aims to develop effective communicators that can use a variety of technology tools and transfer their skills into new contexts.</p>	MP 1 and year-long integration
<p><b>Unit 2: Computer Science/Coding</b> This unit aims to develop computational thinking, or the thought process involved in expressing solutions as computational steps that can be carried out by a computer. Students must demonstrate an ability to understand the capabilities of computers, formulate problems addressed by a computer, and design algorithms that a computer can execute.</p>	MP 2 and year-long integration
<p><b>Unit 3: Digital and Global Citizenship</b> This unit aims to develop good digital citizens who are a part of a global society of interconnected users. As such, students must demonstrate an ability to behave safely, responsibly, and respectfully when communicating and collaborating in their virtual environments. As global citizens, students explore concerns about the impact of technology on the natural world.</p>	MP 3 and year-long integration
<p><b>Unit 4: Research, Data, and Innovation</b> This unit aims to empower learners to access, retrieve and produce well managed resources. Learners will pursue and create relevant information using the opportunities of high-quality materials. A basic understanding of ethical use of information will develop. In addition to digital research, students will recognize both data collection and the engineering design process as relevant ways to gather information.</p>	MP 4 and year-long integration

The following colors are used throughout this document to indicate areas in which the curriculum is aligned with the following NJSA requirements:

Holocaust and genocides (N.J.S.A. 18A:35-28)

History and contributions of African-Americans (Amistad Law) (N.J.S.A. 18A:35-4.43)

(Diversity & Inclusion Law) (N.J.S.A. 18A:35-4.36a)

**Climate Change** - [Please click here for specific examples \(by subject\)](#)

Technologies that either reduce or optimize the use of natural resources while reducing the negative effect that technology has on the planet and its ecosystems, is essential for developing a populace with the knowledge and skills necessary to mitigate the effects of climate change. In this unit, students will participate respectfully and responsibly in digital environments, which will help move society away from older forms of communication and collaboration that promote a reliance on and over-consumption of natural resources.

## Unit 1: DIGITAL COMMUNICATION

### Stage 1: Desired Results

**Unit Title:** Digital Communication

**Unit Summary:** In this cross-curricular year-long unit, our 21st Century Learners need to have basic understandings of general technology to be able to navigate their digital lives. To communicate effectively in a digital world, students need to have an understanding of general technology vocabulary as well as an essential general understanding of the contents of their digital lives. The use of online digital tools allows students to create, share, and collaborate. Students in grades K- 1 will be introduced to the keyboard layout, and then students in grades 2 - 5 will be using a typing program on a weekly basis to improve their speed and accuracy. Students will be introduced to the Google Education Suite in grades 2 - 5 as they begin to use Google Docs, Google Drive, and Google Classroom. At the conclusion of this unit, students will be able to explore their digital world collaboratively and creativity using the digital tools they have learned.

### Unit 1 Learning Targets

**NJSLS Grade Level Standards:**

W.K.6. With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers.

SL.K.1.B. Continue a conversation through multiple exchanges.

SL.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

SL.K.4. Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.

SL.K.5. Add drawings or other visual displays to descriptions as desired to provide additional detail.

SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

L.K.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

A. Capitalize the first word in a sentence and the pronoun I.

B. Recognize and name end punctuation.

C. Write a letter or letters for most consonant and short-vowel sounds (phonemes).

D. Spell simple words phonetically, drawing on knowledge of sound-letter relationships.

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.

- 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.DC.2: Explain the importance of respecting the digital content of others.
- 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments.
- 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.

**Curricular Connections**

**Career Readiness, Life Literacies, & Key Skills (CLKS):**

- 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content.

**Computer Science & Design Thinking (CS & DT):**

- 8.1.2.CS.2: Explain the functions of common software and hardware components of computing systems.
- 8.1.2.CS.3: Describe basic hardware and software problems using accurate terminology.

**Interdisciplinary Connections:**

**ELA Anchor Standards**

- NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.
- NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- NJSLSA.W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
- NJSLSA.W3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
- NJSLSA.W4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- NJSLSA.W5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
- NJSLSA.W6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
- NJSLSA.W10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.
- NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
- NJSLSA.SL3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric
- NJSLSA.SL4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
- NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
- NJSLSA.SL6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.
- NJSLSA.L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

NJSLSA.L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

NJSLSA.L3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

NJSLSA.L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

NJSLSA.L6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

**VPA**

- 1.2.2 Media Arts Anchor Standard 1: Generating and conceptualizing ideas
- 1.2.2 Media Arts Anchor Standard 2: Organizing and developing ideas
- 1.2.2 Media Arts Anchor Standard 3: Refining and completing products
- 1.2.2 Media Arts Anchor Standard 4: Selecting, analyzing, and interpreting work
- 1.2.2 Media Arts Anchor Standard 5: Developing and refining techniques and models or steps needed to create products
- 1.2.2 Media Arts Anchor Standard 9: Applying criteria to evaluate products.
- 1.2.2 Media Arts Anchor Standard 10: Synthesizing and relating knowledge and personal experiences to create products.
- 1.2.2 Media Arts Anchor Standard 11: Relating artistic ideas and works within societal, cultural, and historical contexts to deepen understanding.

**Unit Essential Questions:**

- How do I choose which tech tools to use and when to use them?
- How can technology be used to communicate?
- How can I communicate so others can understand me?
- How can I transfer what I know to new technological situations/experiences?
- How can digital tools be used for creating original and innovative works, ideas, and solutions?

**Unit Enduring Understandings:**

- The form of communication (i.e., text, verbal, visual) is influenced by the limits and capabilities of the channel used to communicate.
- Communication is a two-way interactive process between the message sender and the message receiver.
- The message sender's word choice, visual choices, use of conventions, and chosen channel of communication all affect how effective they are in communicating their message.

**Content-Students will know:**

- Individuals use computing devices to perform a variety of tasks accurately and quickly. Computing devices interpret and follow the instructions they were given literally.
- Brainstorming can create new, innovative ideas.
- Digital artifacts can be owned by individuals or organizations.
- Digital communities allow for social interactions that can result in positive and negative outcomes.

**Skills-Students will be able to:**

- Find the letters on the keyboard to type their name.
- Use digital tools to write labels.
- Use digital tools to type a short sentence.
- Type using grade level conventions: Capitalize your name, the first letter of the sentence, and the word I; put one space between words; put a period at the end of a sentence; spell CVC words and some sight words.

<p>Information is shared or conveyed in a variety of formats and sources.          Digital tools have purpose.          Collaboration can simplify the work an individual has to do and sometimes produce a better product.</p>	<p>Format and edit text.          Record their voice.          Record videos.          Speak audibly and express thoughts, feelings, and ideas clearly.          Draw or add images.          Respond to or comment on another's work or ideas.          Communicate respectfully and responsibly.</p>
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## Stage 2: Evidence of Student Learning

### Summative Assessments:

- Activity available on our district Seesaw Library: [Digital Communication](#)
- Take a photo, write a matching sentence, record yourself reading the sentence. Evaluate it using the tagged Seesaw Skills.

### Formative Assessments:

- [Seesaw Skills](#) are available on our Seesaw for Schools district accounts. Each skill is linked to a standard and teachers can evaluate student work by giving each skill a star rating, as you would with a rubric.

### Alternative Assessments:

- Activity available on our district Seesaw Library: [Kindergarten Sentence Writing\\*](#)
- Write a sentence that matches the picture. Evaluate it using the tagged Seesaw Skills.

\*Similar, alternative assessments are acceptable including those where students create the picture as well.

## Stage 3: Core Instructional Plan & Resources

Standard:	Skill:	Learning Activities:	Timeline:
SL.K.1.B SL.K.3 SL.K.4 SL.K.6 9.4.2.DC.6 9.4.2.DC.2 9.4.2.CI.1 9.4.2.TL.1	Record an audio or video comment.	<ul style="list-style-type: none"> <li>• Post a class photo on Seesaw and have students record a comment introducing themselves.</li> <li>• Mini-lesson on making positive comments directly linked to the subject of the work vs. comments that just say “good job.”</li> <li>• View and comment on others’ work in your class or other classes through Seesaw blogs. See Materials below for Collaborative Project Ideas.</li> </ul>	All year

8.1.2.CS.1		<ul style="list-style-type: none"> <li>• Comment on your own work telling what you are proud of or what you could change next time.</li> <li>• Respond to a Flipgrid post by adding a video comment.</li> </ul>	
SL.K.4 SL.K.6 SL.K.5 9.4.2.TL.1 8.1.2.CS.1	Record a video.	<ul style="list-style-type: none"> <li>• <a href="#">Learn to Take Video in Seesaw</a></li> <li>• Take a video within Seesaw's creative canvas.</li> <li>• Take a video on the Camera app.</li> <li>• Take a video on Flipgrid.</li> </ul>	All year
W.K.6 9.4.2.TL.1	Type your name.	<ul style="list-style-type: none"> <li>• <a href="#">Type Your Name</a></li> <li>• Type your name on various pieces of work all year to keep the capitalization skills sharp.</li> </ul>	All year
9.4.2.TL.6 SL.K.5 9.4.2.TL.1 8.1.2.CS.1	Take a picture.	<ul style="list-style-type: none"> <li>• <a href="#">Learn to Take a Picture</a></li> <li>• Take a picture within Seesaw's creative canvas.</li> <li>• Take a picture on the Camera app.</li> </ul>	All year
9.4.2.TL.1	Change the color of text.	<ul style="list-style-type: none"> <li>• See Learn to Take a Picture above.</li> </ul>	All year
SL.K.4 SL.K.6 9.4.2.TL.1 8.1.2.CS.1	Use the microphone.	<ul style="list-style-type: none"> <li>• <a href="#">How to Use the Microphone in Seesaw</a></li> <li>• <a href="#">Seesaw Tools: Microphone</a></li> <li>• Use the microphone while using other apps on the iPad.</li> </ul>	All year
SL.K.5 9.4.2.TL.6 9.4.2.CI.2 9.4.2.TL.1 8.1.2.CS.1	Put images together to create a picture.	<ul style="list-style-type: none"> <li>• <a href="#">Make a Snowman</a></li> <li>• <a href="#">My Heart Is Like a Zoo Read Aloud and Digital Craft</a></li> </ul>	2-3 days
SL.K.5 9.4.2.TL.6 9.4.2.CI.2 9.4.2.TL.1 8.1.2.CS.1	Draw a picture.	<ul style="list-style-type: none"> <li>• <a href="#">Grade K: (March) Self-Portrait/Write Names</a></li> <li>• Draw pictures and upload them to Seesaw using the camera tools.</li> <li>• Draw pictures using digital tools, such as the pencil and marker tools on Seesaw.</li> <li>• Draw pictures in other apps (see Art folder on iPad)</li> </ul>	All year
W.K.6 9.4.2.TL.1 8.1.2.CS.1	Write a label.	<ul style="list-style-type: none"> <li>• See Learn to Take a Picture above.</li> <li>• <a href="#">Typing Practice: Writing Your Name and CVC Words</a></li> </ul>	All year

		<ul style="list-style-type: none"> <li>• <a href="#">Typing Practice 2: Writing Your Name and CVC Words</a></li> </ul>	
L.K.2	Capitalize the word I.	<ul style="list-style-type: none"> <li>• <a href="#">Typing Practice: Capitalizing the word “I”</a></li> <li>• <a href="#">Typing Practice: Capitalizing the Word “I” Part 2</a></li> </ul>	2-3 days
L.K.2	Capitalize the first word in the sentence.	<ul style="list-style-type: none"> <li>• <a href="#">Typing Practice: Capitalizing the first Word in a Sentence</a></li> <li>• <a href="#">Typing Practice: Capitalizing the first Word in a Sentence Part 2</a></li> </ul>	2-3 days
W.K.6 9.4.2.TL.2 9.4.2.TL.1 L.K.2 8.1.2.CS.1	Type a sentence with proper capitalization, spacing, and punctuation.	<ul style="list-style-type: none"> <li>• <a href="#">Kindergarten Sentence Writing</a></li> <li>• Also see Alternative Assessments and Summative Assessment boxes in case you would like those files as a part of the learning activities.</li> </ul>	2-3 days
W.K.6 SL.K.4 SL.K.5 9.4.2.TL.6 9.4.2.CI.2 9.4.2.TL.1 SL.K.6 8.1.2.CS.1	Record your voice and move characters to create an animation to tell a story.	<ul style="list-style-type: none"> <li>• <a href="#">Create a Winter Scene</a></li> <li>• <a href="#">Use iPad apps</a> such as Draw and Tell, Superhero Comic Book Maker, Princess Fairy Tale Maker, Puppet Pals HD, Puppet Pals 2, and Toontastic 3D to create stories.</li> </ul>	1-5 days

## Core Instructional & Supplemental Materials

Materials	Notes
iPads	
Seesaw for Schools	Many activities in this unit are made possible by a paid Seesaw for Schools subscription including the robust assessment component.
Flipgrid	Optional
Art and Vids and Toons folder of apps: Draw and Tell, Superhero Comic Book Maker, Princess Fairy Tale Maker, Puppet Pals HD, Puppet Pals 2, and Toontastic 3D	Optional
<a href="#">Capitalization Poster</a>	
<a href="#">Article on Supporting a Digital Writing Process</a>	From Ten Things on Tuesday blog by Erin Kramer for teacher reference
<a href="#">Technology Explorers Poster</a> <a href="#">Technology Explorer Lesson Plan</a>	More info available on <a href="#">Ten Things on Tuesday</a>

<a href="#">Ten Collaborative Project Ideas</a>	From Ten Things on Tuesday blog by Erin Kramer for teacher reference
<a href="#">Word Processing Expectations by Developmental Level</a>	From Ten Things on Tuesday blog by Erin Kramer for teacher reference

## Suggested Activities for Differentiation

### **Suggested Strategies and Practices that Support Students with Disabilities:**

- Use of visual and multisensory formats
- Use of assisted technology
- Use of prompts
- Modification of content and student products
- Testing accommodations
- Authentic assessments

### **Suggested Strategies and Practices that Support English Language Learners:**

- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling
- Pairing students with beginning English language skills with students who have more advanced English language skills
- Scaffolding
- Word walls
- Sentence frames
- Think-pair-share
- Cooperative learning groups

### **Students At Risk of Failure:**

- Include choice whenever possible
- Allow students to incorporate their interests into their activities
- Small group instruction
- Scaffolding
- Modification of content and student products
- Testing accommodations
- Authentic assessments

### **Students with 504 Plans:**

- Chunked content
- Frequent breaks
- Written and/or visual instructions to supplement whole group lessons
- Small group instruction
- Scaffolding
- Modification of content and student products



- Testing accommodations
- Authentic assessments

**Specific Strategies and Practices that Support Gifted & Talented Students:**

- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios

## Unit 2: COMPUTER SCIENCE/CODING

### Stage 1: Desired Results

**Unit Title:** Computer Science/Coding

**Unit Summary:** This unit aims to develop computational thinking, or the thought process involved in expressing solutions as computational steps that can be carried out by a computer. Students must demonstrate an ability to understand the capabilities of computers, formulate problems addressed by a computer, and design algorithms that a computer can execute.

### Unit 1 Learning Targets

**NJSLS Grade Level Standards:**

- 8.1.2.AP.1: Model daily processes by creating and following algorithms to complete tasks.
- 8.1.2.AP.2: Model the way programs store and manipulate data by using numbers or other symbols to represent information.
- 8.1.2.AP.3: Create programs with sequences and simple loops to accomplish tasks.
- 8.1.2.AP.4: Break down a task into a sequence of steps.
- 8.1.2.AP.5: Describe a program's sequence of events, goals, and expected outcomes.
- 8.1.2.AP.6: Debug errors in an algorithm or program that includes sequences and simple loops.
- 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs.
- 8.2.2.ITH.2: Explain the purpose of a product and its value.
- 8.2.2.ITH.3: Identify how technology impacts or improves life.
- 8.2.2.ITH.4: Identify how various tools reduce work and improve daily tasks.
- 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools.

**Curricular Connections**

**Career Readiness, Life Literacies, & Key Skills (CLKS):**

- 9.4.2.CI.2: Demonstrate originality and inventiveness in work
- 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem.
- 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.

**Computer Science & Design Thinking (CS & DT):**

- 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.CS.2: Explain the functions of common software and hardware components of computing systems.
- 8.1.2.CS.3: Describe basic hardware and software problems using accurate terminology.

**Interdisciplinary Connections:**

**ELA Anchor Standards**

NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

NJSLSA.W6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

NJSLSA.L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

NJSLSA.L6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

## **Math**

MP1 Make sense of problems and persevere in solving them.

## **Social Studies**

6.1.2.CivicsCM.2: Use examples from a variety of sources to describe how certain characteristics can help individuals collaborate and solve problems (e.g., open-mindedness, compassion, civility, persistence).

## **VPA**

1.2.2 Media Arts Anchor Standard 1: Generating and conceptualizing ideas

1.2.2 Media Arts Anchor Standard 2: Organizing and developing ideas

1.2.2 Media Arts Anchor Standard 3: Refining and completing products

1.2.2 Media Arts Anchor Standard 4: Selecting, analyzing, and interpreting work

1.2.2 Media Arts Anchor Standard 5: Developing and refining techniques and models or steps needed to create products

### **Unit Essential Questions:**

What is technology and how does it work?

What is coding and what can you use coding to create?

How can we use technology to create original and innovative works, ideas, and solutions?

How is computer programming useful in real life?

### **Unit Enduring Understandings:**

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.

Digital tools provide enhanced opportunities to design innovative solutions and express ideas creatively.

Develop computational thinking skills to help prepare to learn to write code and solve other problems.

**Content-Students will know:**

Individuals develop and follow directions as part of daily life.

A sequence of steps can be expressed as an algorithm that a computer can process.

Real world information can be stored and manipulated in programs as data (e.g., numbers, words, colors, images).

Computers follow precise sequences of steps that automate tasks.

Complex tasks can be broken down into simpler instructions, some of which can be broken down even further.

People work together to develop programs for a purpose, such as expressing ideas or addressing problems.

The development of a program involves identifying a sequence of events, goals, and expected outcomes, and addressing errors (when necessary).

**Skills-Students will be able to:**

Create algorithms for daily tasks.

Use symbols to model the way programs store and manipulate data.

Create programs with sequences.

Debug errors in an algorithm.

## Stage 2: Evidence of Student Learning

**Summative Assessments:**

- Digital Assessment folder
- **Teacher Dashboard** of online coding programs (i.e. Kodable, Code.org).
- [Seesaw Activity: All About Algorithms](#)
- **Projects:** Creativity and problem solving are important 21st century skills that can't easily be measured with a quiz.

**Formative Assessments:**

- Digital Assessment folder
- **Teacher Dashboard** of online coding programs (i.e. Kodable, Code.org).
- **Quick-check levels** include multiple choice or short answer questions. These are usually given after students have had a chance to explore a concept. They check for common misunderstandings before students move on to the next lesson or task. Students are able to get feedback from the system immediately, and revise their answers before moving on to the next task. Each quick-check level includes teacher notes detailing the learning objective being assessed.
- **Programming levels** challenge students to complete a small programming task.
- [Seesaw Skills](#) are available on our Seesaw for Schools district accounts. Each skill is linked to a standard and teachers can evaluate student work by giving each skill a star rating, as you would with a rubric.
- Seesaw Activity: [Gingerbread Coding Map](#) By "programming" using arrows to successfully direct the character through a "maze".

**Alternative Assessments:**

- Class discussions provide an opportunity for group sensemaking and for teachers to informally assess student understanding.
- Teacher observations

### Stage 3: Core Instructional Plan & Resources

Standard:	Skill:	Learning Activities:	Timeline:
8.2.2.ITH.1 8.2.2.ITH.2 8.2.2.ITH.3 8.2.2.ITH.4 8.1.2.CS.1 8.1.2.CS.2 8.1.2.CS.3 9.4.2.TL.1 9.4.2.TL.7	Identify the difference between hardware and software. Discuss and collaborate to solve hardware and software issues relevant to computer programming.	Mini-lesson to compare and contrast various hardware and software devices and the role they play in computer programming. <ul style="list-style-type: none"> <li>• <a href="#">Hardware vs. Software Identification Sort</a></li> </ul>	1-2 weeks - continual discussion throughout the unit.
8.2.2.ITH.1 8.2.2.ITH.2 8.2.2.ITH.3 8.2.2.ITH.4 9.4.2.TL.6	Analyze products that use code. Explain the purpose/value (i.e., what problem it solves or what task it makes easier/better).	Look at everyday objects that use code: <ul style="list-style-type: none"> <li>• eBooks that move or have interactive elements like Duck Duck Moose's Wheels on the Bus, Itsy Bitsy Spider, or Old MacDonald</li> <li>• A video of or an actual Roomba</li> <li>• Video Games</li> </ul> Use symbols that look like the blockly codes you will use in later lessons to represent the code you think makes it work. Discuss the purpose and value of the object that uses code to make it run.	1 week
8.1.2.AP.1 9.4.2.CT.2	Create algorithms for daily tasks.	Create and perform an algorithm for a simple daily task (i.e. code the teacher to get to the __ , brushing your teeth, making a PB&J sandwich, <a href="#">sorting the garbage/recycling</a> ). Introduce coding basics with through use of mini-lesson on real world connection - How to Build a Sandcastle. <a href="#">BrainpopJr Computer Programming</a> <a href="#">Seesaw Activity: What is an Algorithm</a> Collaboratively develop and analyze daily algorithms. Hopscotch Coding - Unplugged Interactive Activity	1-2 weeks - continual discussion throughout the unit.

8.1.2.AP.2 8.1.2.A P.3 8.1.2.AP.4 8.1.2.AP.5 8.2.2.ITH.4 9.4.2.TL.4	Using symbols to model the way programs store and manipulate data, create programs with sequences.	Transfer knowledge of use of arrows and directionals into solution of maze-like puzzles. (Code.org, Hopscotch, and Code a Robot around the room activity) Create a “Codes We Know” board and add to it with each lesson. Use various coding software applications to create a program to make a character, sprite, or icon move in a desired outcome. <a href="#">Kodable: Sequence</a> Scratch Jr Code.org grade appropriate courses Fuzzy Flex Handout	4+ weeks - continual discussion throughout the unit.
8.1.2.AP.6 9.4.2.TL.6 9.4.2.CI.2 9.4.2.CT.1	Debug errors in an algorithm.	Debug errors within your code throughout the unit. <a href="#">Code.org video on debugging</a>	3+ weeks - continual discussion throughout the unit.

### Core Instructional & Supplemental Materials (including various levels of texts)

Materials	Notes
iPads	
Chromebooks	
Text: Hello Ruby: Adventures in Coding by Linda Liukas	
Text: How to Code a Sandcastle by Josh Funk	
Scratch Jr App	
Seesaw for Schools	
Kodable	
Code.org	
<a href="#">Codalicious/Ellipsis</a>	
Osmo App and Learning Manipulatives	

### Suggested Activities for Differentiation

#### Suggested Strategies and Practices that Support Students with Disabilities:

- Use of visual and multisensory formats
- Use of assisted technology
- Use of prompts
- Modification of content and student products

- Testing accommodations
- Authentic assessments

#### **Suggested Strategies and Practices that Support English Language Learners:**

- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling
- Pairing students with beginning English language skills with students who have more advanced English language skills
- Scaffolding
- Word walls
- Sentence frames
- Think-pair-share
- Cooperative learning groups

#### **Students At Risk of Failure:**

- Include choice whenever possible
- Allow students to incorporate their interests into their activities
- Small group instruction
- Scaffolding
- Modification of content and student products
- Testing accommodations
- Authentic assessments

#### **Students with 504 Plans:**

- Chunked content
- Frequent breaks
- Written and/or visual instructions to supplement whole group lessons
- Small group instruction
- Scaffolding
- Modification of content and student products
- Testing accommodations
- Authentic assessments

#### **Specific Strategies and Practices that Support Gifted & Talented Students:**

- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios

## Unit 3: DIGITAL AND GLOBAL CITIZENSHIP

### Stage 1: Desired Results

**Unit Title:** Digital and Global Citizenship

**Unit Summary:** This unit aims to develop good digital citizens who are a part of a global society of interconnected users. As such, students must demonstrate an ability to behave safely, responsibly, and respectfully when communicating and collaborating in their virtual environments. As global citizens, students explore concerns about the impact of technology on the natural world.

### Unit 1 Learning Targets

**NJSLS Grade Level Standards:**

- 8.1.2.NI.1: Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network.
- 8.1.2.NI.2: Describe how the Internet enables individuals to connect with others worldwide.
- 8.1.2.IC.1: Compare how individuals live and work before and after the implementation of new computing technology.
- 8.2.2.EC.1: Identify and compare technology used in different schools, communities, regions, and parts of the world.
- 9.4.2.GCA.1: Articulate the role of culture in everyday life by describing one's own culture and comparing it to the cultures of other individuals.
- 8.1.2.NI.3: Create a password that secures access to a device. Explain why it is important to create unique passwords that are not shared with others.
- 8.1.2.NI.4: Explain why access to devices need to be secured.
- 9.4.2.DC.1: Explain differences between ownership and sharing of information.
- 9.4.2.DC.2: Explain the importance of respecting the digital content of others.
- 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet.
- 9.4.2.DC.4: Compare information that should be kept private to information that might be made public.
- 9.4.2.DC.5: Explain what a digital footprint is and how it is created.
- 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments.
- 9.4.2.DC.7: Describe actions peers can take to positively impact climate change.
- 8.2.2.ITH.3: Identify how technology impacts or improves life.
- 8.2.2.ITH.4: Identify how various tools reduce work and improve daily tasks.
- 8.2.2.ITH.5: Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution.
- 8.2.2.ETW.1: Classify products as resulting from nature or produced as a result of technology.
- 8.2.2.ETW.2: Identify the natural resources needed to create a product.
- 8.2.2.ETW.3: Describe or model the system used for recycling technology.
- 8.2.2.ETW.4: Explain how the disposal of or reusing a product affects the local and global environment.

**Curricular Connections**

**Career Readiness, Life Literacies, & Key Skills (CLKS):**

- 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives.

**Computer Science & Design Thinking (CS & DT):**

- 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.CS.2: Explain the functions of common software and hardware components of computing systems.

8.1.2.CS.3: Describe basic hardware and software problems using accurate terminology.

### **Interdisciplinary Connections:**

#### **ELA Anchor Standards**

NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

NJSLSA.W4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

NJSLSA.W6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

NJSLSA.W10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

NJSLSA.SL4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

NJSLSA.SL6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

NJSLSA.L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

NJSLSA.L6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

#### **Social Studies**

6.1.2.CivicsPI.5: Describe how communities work to accomplish common tasks, establish responsibilities, and fulfill roles of authority.

6.1.2.CivicsPD.1: Engage in discussions effectively by asking questions, considering facts, listening to the ideas of others, and sharing opinions.

6.1.2.CivicsPD.2: Establish a process for how individuals can effectively work together to make decisions.

6.1.2.CivicsPR.1: Determine what makes a good rule or law.

6.1.2.CivicsPR.2: Cite evidence that explains why rules and laws are necessary at home, in schools, and in communities.

6.1.2.CivicsPR.3: Analyze classroom rules and routines and describe how they are designed to benefit the common good.

6.1.2.CivicsPR.4: Explain why teachers, local community leaders, and other adults have a responsibility to make rules that are fair, consistent, and respectful of individual rights.

6.1.2.CivicsCM.3: Explain how diversity, tolerance, fairness, and respect for others can contribute to individuals feeling accepted.

#### **Unit Essential Questions:**

What are my responsibilities when using technology?

What impacts do using digital devices have on my health and well-being?

How can I be safe and kind online?

#### **Unit Enduring Understandings:**

Technology use can have positive or negative impact on both users and those affected by their use.

Information is spread world-wide due to technological advancement and has an immediate impact.

<p>How do we use digital media and environments to communicate and work collaboratively?</p>	<p>Effective communication and collaboration skills are necessary to interact within a global society.</p>
<p><b>Content-Students will know:</b></p> <p>Computer networks can be used to connect individuals to other individuals, places, information, and ideas. The Internet enables individuals to connect with others worldwide.</p> <p>Computing technology has positively and negatively changed the way individuals live and work (e.g., entertainment, communication, productivity tools).</p> <p>The use of technology developed for the human designed world can affect the environment, including land, water, air, plants, and animals.</p> <p>Technologies that use natural sources can have negative effects on the environment, its quality, and inhabitants.</p> <p>Reusing and recycling materials can save money while preserving natural resources and avoiding damage to the environment.</p> <p>Connecting devices to a network or the Internet provides great benefits, but care must be taken to use authentication measures, such as strong passwords, to protect devices and information from unauthorized access.</p> <p>Digital artifacts can be owned by individuals or organizations.</p> <p>Individuals should practice safe behaviors when using the Internet.</p> <p>An individual's digital footprint reflects the various actions an individual makes online, both positive and negative.</p> <p>Digital communities allow for social interactions that can result in positive or negative outcomes.</p> <p>Individuals from different cultures may have different points of view and experiences.</p>	<p><b>Skills-Students will be able to:</b></p> <p>Model and describe how individuals are connected through networks and can use the Internet to connect worldwide.</p> <p>Identify impacts/improvements of wide-spread digital access and networking including those on the natural environment.</p> <p>Identify and compare technology used in different schools, communities, regions, and parts of the world.</p> <p>Identify and exhibit behaviors that keep themselves and their data safe and secure online.</p> <p>Discriminate between sharing and oversharing.</p> <p>Communicate respectfully and responsibly.</p>

## Stage 2: Evidence of Student Learning

### Summative Assessments:

- Digital Assessment folder
- Student portfolio of work on Seesaw.

### Formative Assessments:

- Digital Assessment folder
- BrainpopJr: [Internet Safety Quiz](#)
- Completion of Seesaw Activities

- [Seesaw Skills](#) are available on our Seesaw for Schools district accounts. Each skill is linked to a standard and teachers can evaluate student work by giving each skill a star rating, as you would with a rubric.

**Alternative Assessments:**

- Class discussions provide an opportunity for group sensemaking and for teachers to informally assess student understanding.
- Teacher observations

**Stage 3: Core Instructional Plan & Resources**

Standard:	Skill:	Learning Activities:	Timeline:
8.1.2.NI.1 8.1.2.NI.2 8.1.2.CS.1 8.1.2.CS.2 8.1.2.CS.3 8.1.2.IC.1 8.2.2.EC.1 9.4.2.GCA.1	<ul style="list-style-type: none"> <li>• Model and describe how individuals are connected through networks and can use the Internet to connect worldwide.               <ul style="list-style-type: none"> <li>◦ Independently access applications.</li> <li>◦ Identify common symbols used for navigating within applications and transfer knowledge to be able to navigate new applications.</li> <li>◦ Determine if your device is online or offline.</li> <li>◦ Use the Internet to connect with other students.</li> </ul> </li> <li>• Identify impacts/improvements of wide-spread digital access and networking including those on the natural environment.</li> <li>• Identify and compare technology used in different schools, communities, regions, and parts of the world.</li> </ul>	Presentation and discussion on making global connections through use of programs (online and apps), networks, and the Internet. <ul style="list-style-type: none"> <li>• <a href="#">Technology Explorers Poster</a></li> <li>• <a href="#">Technology Explorers Lesson Plan</a> <ul style="list-style-type: none"> <li>◦ <a href="#">Great for Technology Explorers: Trucks HD app in the purple garbage truck section: sort the waste into compost, recycling, and trash.</a></li> </ul> </li> <li>• <a href="#">Technology Explorers Video Mini-Lesson</a></li> <li>• Identify the wifi symbol to see if your device is connected to the wifi.</li> <li>• <b>Digital Communication Unit Link:</b> Engage in projects where you connect with other classes.</li> <li>• <b>Research, Data, and Innovation Unit link:</b> Survey other kindergartners to find out what devices they use. Create a visual representation of the data.</li> </ul>	4+ weeks - continual discussion throughout the unit.
8.1.2.N I.3 8.1.2.N I.4 9.4.2.DC.2 9.4.2.DC.3 9.4.2.DC.4 9.4.2.DC.5 9.4.2.DC.6	Being a good online citizen- <ul style="list-style-type: none"> <li>• Identify and exhibit behaviors that keep themselves and their data safe and secure online.</li> <li>• Discriminate between sharing and oversharing.</li> <li>• Communicate respectfully and responsibly.</li> </ul>	<a href="#">ABCYA: Cyber-Five</a> : Review the 5 rules to online safety <a href="#">Hector's World</a>   eSafety Commissioner Seesaw Activities: <ul style="list-style-type: none"> <li>• <a href="#">Common Sense Media Balance</a></li> <li>• <a href="#">Common Sense Media Pause and Think On-line</a></li> </ul> Seesaw Digital Leadership with Bean Activities: <a href="#">Teacher Implementation Guide</a> <ul style="list-style-type: none"> <li>• <a href="#">What Is a Digital Leader Video</a></li> <li>• <a href="#">Bean Is a Digital Leader</a></li> </ul>	3-4 weeks - continual discussion throughout the unit.

		<ul style="list-style-type: none"> <li>• <a href="#">Bean Goes on the Internet</a></li> <li>• <a href="#">Bean Cares for a Device</a></li> <li>• <a href="#">Bean Stops Screen Time</a> for K</li> <li>• <a href="#">Bean's Digital Footprint on the Internet</a> for K</li> <li>• <a href="#">Bean Learns to be Kind on the Internet</a> for K</li> </ul> <p>BrainPOP Jr.: <a href="#">Internet Safety</a></p> <p><a href="#">If You Give a Mouse an I-Phone</a>: by Ann Droyd - Lesson on screen time limits</p>	
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## Core Instructional & Supplemental Materials

Materials	Notes
<a href="#">Tablet Apps for Technology Explorers from Ten Things on Tuesday</a>	Suggestions on which apps to use for Technology Explorers lessons.
If You Give a Mouse and iPhone by Ann Droyd	
<a href="#">Netsmartz -Elementary</a>	
<a href="#">Common Sense Media</a>	
<a href="#">K-12 Computer Science Framework Statements by Grade Band</a>	
Prodigy Education: <a href="#">7 Digital Citizenship Skills Your Students Need to Know</a>	
Infographic: <a href="#">Digital Citizenship for Students</a>	
<a href="#">Seesaw Digital Leadership with Bean Activity Teacher Implementation Guide</a>	

## Suggested Activities for Differentiation

### Suggested Strategies and Practices that Support Students with Disabilities:

- Use of visual and multisensory formats
- Use of assisted technology
- Use of prompts
- Modification of content and student products
- Testing accommodations
- Authentic assessments

### Suggested Strategies and Practices that Support English Language Learners:

- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling
- Pairing students with beginning English language skills with students who have more advanced English language skills
- Scaffolding
- Word walls

- Sentence frames
- Think-pair-share
- Cooperative learning groups

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- Include choice whenever possible
- Allow students to incorporate their interests into their activities
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- Scaffolding
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- Testing accommodations
- Authentic assessments

**Students with 504 Plans:**

- Chunked content
- Frequent breaks
- Written and/or visual instructions to supplement whole group lessons
- Small group instruction
- Scaffolding
- Modification of content and student products
- Testing accommodations
- Authentic assessments

**Specific Strategies and Practices that Support Gifted & Talented Students:**

- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios

## Unit 4: RESEARCH, DATA, AND INNOVATION

### Stage 1: Desired Results

#### Unit Title: Research, Data, and Innovation

**Unit Summary:** This unit aims to empower learners to access, retrieve and produce well managed resources. Learners will pursue and create relevant information using the opportunities of high-quality materials. A basic understanding of ethical use of information will develop. In addition to digital research, students will recognize both data collection and the engineering design process as relevant ways to gather information.

#### Unit 1 Learning Targets

##### NJSLS Grade Level Standards:

- NJSLSA.W7. Conduct short as well as more sustained research projects, utilizing an inquiry-based research process, based on focused questions, demonstrating understanding of the subject under investigation.
- NJSLSA.W8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
- NJSLSA.W9. Draw evidence from literary or informational texts to support analysis, reflection, and research.
- 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.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem.
- 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.DC.1: Explain differences between ownership and sharing of information.
- 9.4.2.DC.2: Explain the importance of respecting the digital content of others.
- 9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource.
- 9.4.2.IML.2: Represent data in a visual format to tell a story about the data.
- 9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults.
- 9.4.2.TL.3: Enter information into a spreadsheet and sort the information.
- 9.4.2.TL.5: Describe the difference between real and virtual experiences.
- 8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats.
- 8.1.2.DA.2: Store, copy, search, retrieve, modify, and delete data using a computing device.
- 8.1.2.DA.3: Identify and describe patterns in data visualizations.
- 8.1.2.DA.4: Make predictions based on data using charts or graphs.
- 8.2.2.ED.1: Communicate the function of a product or device.
- 8.2.2.ED.2: Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.
- 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design process.
- 8.2.2.ED.4: Identify constraints and their role in the engineering design process.

#### Curricular Connections

#### Career Readiness, Life Literacies, & Key Skills (CLKS):

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.

### **Computer Science & Design Thinking (CS & DT):**

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.1: Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network.

8.1.2.NI.2: Describe how the Internet enables individuals to connect with others worldwide.

### **Interdisciplinary Connections:**

NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

NJSLSA.L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

NJSLSA.L6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

### **Math**

MP1 Make sense of problems and persevere in solving them.

MP2 Reason abstractly and quantitatively.

MP3 Construct viable arguments and critique the reasoning of others.

MP4 Model with mathematics.

K.CC.B Count to tell the number of objects.

K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.

K.MD.B.3 Classify objects into given categories; count the number of objects in each category and sort the categories by count.

### **Science**

K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change (e.g., climate 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.

K-PS2-2 Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull. [Clarification Statement: Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.] [Assessment Boundary: Assessment does not include friction as a mechanism for change in speed.]

K-PS3-2 Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. [Clarification Statement: Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.]

K-ESS3-3 Communicate solutions that will reduce the impact of climate change and humans on the land, water, air, and/or other living things in the local environment. [Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.]

**Unit Essential Questions:**

What are the similarities and differences between real and cyber communities?  
How can technology be used to learn new information?  
What are an individual's responsibilities for using technology?  
Why is the evaluation and appropriate use of accurate information more important than ever in the technological age?  
What digital tools can I use to enter, organize, and analyze data?  
How can we use technology to create original and innovative works, ideas, and solutions?

**Unit Enduring Understandings:**

The digital world offers a variety of information.  
Information is spread world-wide due to technological advancement and has an immediate impact.  
The ability to discern accurate and valid information is a necessary skill for both everyday life and in many careers.  
Data is collected and stored so that it can be analyzed to better understand the world and make more accurate predictions.  
People design for enjoyment and to solve problems, extend human capabilities, satisfy needs and wants, and improve the human condition.

**Content-Students will know:**

Brainstorming can create new, innovative ideas.  
Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.  
Digital artifacts can be owned by individuals or organizations.  
Digital tools and media resources provide access to vast stores of information that can be searched.  
A variety of diverse sources, contexts, disciplines, and cultures provide valuable and necessary information that can be used for different purposes.  
Digital tools have a purpose.  
Technology has changed the way people live and work.  
Various tools can improve daily tasks and quality of life.  
Digital tools can be used to display data in various ways.  
Individuals collect, use, and display data about individuals and the world around them.  
Computers store data that can be retrieved later. Data can be copied, stored in multiple locations, and retrieved.  
Data can be used to make predictions about the world.

**Skills-Students will be able to:**

Research, collect and present data, including climate change data, in various visual formats  
Store, copy, search, retrieve, modify, and delete data using a computing device  
Identify and describe patterns in data visualizations  
Make predictions based on data using charts or graphs  
Adapt/design a research project topic/idea into a grade appropriate multimedia presentation (i.e. Google Slides, Google Sites)  
Explain why it is best to utilize multiple sites when doing research  
Understand the function of keywords and keyword searches  
Learn how to search online by using the alphabet.



Engineering design is a creative process for meeting human needs or wants that can result in multiple solutions.

Limitations (constraints) must be considered when engineering designs.

Innovation and the improvement of existing technology involves creative thinking.

## Stage 2: Evidence of Student Learning

### Summative Assessments:

- Digital Assessment folder
- Completed Research Project

### Formative Assessments:

- Digital Assessment folder
- Completed Seesaw Activities
- Completed ABC Research Dictionary

### Alternative Assessments:

- Class discussions: provide an opportunity for group sensemaking and for teachers to informally assess student understanding.
- Teacher observations
- Presentation: [Copyright](#)
- Self Assessments

## Stage 3: Core Instructional Plan & Resources

Standard:	Skill:	Learning Activities:	Timeline:
NJSLSA.W7 NJSLSA.W8 NJSLSA.W9 9.4.2.IML.2 9.4.2.IML.3	Research, collect and present data, including climate change data, in various visual formats	<a href="#">Elephant Facts for Kids</a> Little Explorers Research: <ul style="list-style-type: none"> <li>• <a href="#">Presentation</a></li> <li>• <a href="#">ScreenCastify How To</a></li> <li>• Website: <a href="http://www.littleexplorers.com">www.littleexplorers.com</a></li> <li>• <a href="#">Little Explorers Search Sheet</a></li> <li>• <a href="#">ABC Research Dictionary</a></li> </ul>	1-2 weeks - throughout unit
9.4.2.CT.3 9.4.2.TL.7 8.1.2.NI.1 8.1.2.NI.2	Make predictions and collaborate with peers to analyze data using charts or graphs	<ul style="list-style-type: none"> <li>• <a href="#">Animal Research</a> - Google Slide with Graphic Organizers</li> </ul>	1-2 weeks - throughout unit

9.4.2.IML.2 9.4.2.TL.3 8.1.2.DA.1 8.1.2.DA.3 9.4.2.TL.1	Identify and describe patterns in data visualizations	<ul style="list-style-type: none"> <li>• Seesaw: <a href="#">Weather</a></li> <li>• <a href="#">Seesaw Visual Data Talks</a></li> </ul>	1-2 weeks - throughout unit
9.4.2.CT.1 8.1.2.DA.4	Propose cause and effect relationships, predict outcomes, or communicate ideas using data	<ul style="list-style-type: none"> <li>• Seesaw: <a href="#">Wind, Water, and Land</a></li> </ul>	1-2 weeks - throughout unit
9.4.2.IML.1 9.4.2.TL.5 9.4.2.TL.4	Learn how to search online by using the alphabet	<ul style="list-style-type: none"> <li>• Website: <a href="http://www.littleexplorers.com">www.littleexplorers.com</a></li> <li>• <a href="#">Little Explorers Search Sheet</a></li> <li>• <a href="#">ABC Research Dictionary</a></li> </ul>	1-2 weeks

## Core Instructional & Supplemental Materials

Materials	Notes
<a href="#">Have You Thanked an Inventor Today?</a> By Patrice McLaurin	
iPads	

## Suggested Activities for Differentiation

### **Suggested Strategies and Practices that Support Students with Disabilities:**

- Use of visual and multisensory formats
- Use of assisted technology
- Use of prompts
- Modification of content and student products
- Testing accommodations
- Authentic assessments

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- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios