



Second Grade 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>Unit 1: Digital Communication 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>Unit 2: Computer Science/Coding 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>Unit 3: Digital and Global Citizenship 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>Unit 4: Research, Data, and Innovation 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.2.6. With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
- SL.2.1.B. Build on others' talk in conversations by linking their explicit comments to the remarks of others.
- SL.2.1.C. Ask for clarification and further explanation as needed about the topics and texts under discussion.
- SL.2.4. Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.
- SL.2.5. Use multimedia; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
- SL.2.6. Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification.
- L.2.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
 - A. Capitalize holidays, product names, and geographic names.

- B. Use commas in greetings and closings of letters.
- C. Use an apostrophe to form contractions and frequently occurring possessives.
- D. Generalize learned spelling patterns when writing words (e.g., cage → badge; boy →boil).
- E. Consult print and digital resources, including beginning dictionaries, as needed to check and correct spellings.

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.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.6: Identify respectful and responsible ways to communicate in digital environments.

9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic).

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.

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.

<p>Content-Students will know:</p> <p>Individuals use computing devices to perform a variety of tasks accurately and quickly. Computing devices interpret and follow the instructions they were given literally.</p> <p>Brainstorming can create new, innovative ideas.</p> <p>Digital artifacts can be owned by individuals or organizations.</p> <p>Digital communities allow for social interactions that can result in positive and negative outcomes.</p> <p>Information is shared or conveyed in a variety of formats and sources.</p> <p>Digital tools have purpose.</p> <p>Collaboration can simplify the work an individual has to do and sometimes produce a better product.</p>	<p>Skills-Students will be able to:</p> <p>Use two hands when finding letters on the keyboard distinguishing the left side vs. the right side of the keyboard for hand placement.</p> <p>Compose short writing pieces digitally.</p> <p>Type longer writing pieces that have been previously handwritten.</p> <p>Type using grade level conventions:</p> <p>Capitalization: Names, the first letter of the sentence, the pronoun I, months and days of the week, holidays, proper nouns, and titles of books</p> <p>Punctuation and Spacing: Put one space between words and a space after the punctuation at the end of the sentence, type a comma, question mark, an exclamation point, and an apostrophe. Use one space after a comma. Use no space when typing an apostrophe.</p> <p>Spelling: Sound out words for spelling and use built-in spell check features.</p> <p>Use formatting tools to change the font, size, color, and alignment of text.</p> <p>Record their voice.</p> <p>Record videos.</p> <p>Speak audibly and produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification.</p> <p>Draw or add images using catalogs that have the proper copyright permissions (e.g., Google Image search within Google Docs).</p> <p>Question, respond to, or comment on another's work or ideas adding new ideas to the conversation.</p> <p>Communicate respectfully and responsibly.</p>
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Stage 2: Evidence of Student Learning

Summative Assessments:

- Select a favorite digital writing piece from the year and self-evaluate. Add additional edits if needed.

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.
- Online Communication (Commenting) Self-Evaluation and Rubric
- Generic 1-4 Rubric

Alternative Assessments:

- Students create and edit a new writing piece to demonstrate their best efforts.

Stage 3: Core Instructional Plan & Resources

Standard:	Skill:	Learning Activities:	Timeline:
W.2.6 8.1.2.CS.1 9.4.2.TL.2 9.4.2.TL.6	Find the letters on the keyboard distinguishing the left side vs. the right side of the keyboard for hand placement.	<ul style="list-style-type: none"> • Keyboard Zoo • Keyboard Zoo 2 • Typing Rocket Junior • Typing Basics Lesson Plan on Typing Club 	All year
SL.2.1.B SL.2.1.C SL.2.4 SL.2.6 L.2.2 W.2.6 9.4.2.DC.6 9.4.2.DC.2 9.4.2.CI.1 9.4.2.TL.1 9.4.2.TL.7	Write or record a comment linking it to the topic being presented. <ul style="list-style-type: none"> • Question, respond to, or comment on another's work or ideas adding new ideas to the conversation. • Communicate respectfully and responsibly. 	<ul style="list-style-type: none"> • Mini-lesson on making positive comments directly linked to the subject of the work vs. comments that just say "good job:" Second Grade Written Commenting Practice • View and comment on others' work in your class or other classes through Seesaw blogs. See Materials below for Collaborative Project Ideas. • Comment on your own work telling what you are proud of or what you could change next time. • Respond to a Flipgrid post by adding a video comment. • Write a comment on Padlet posts. 	All year
W.2.6 9.4.2.TL.2 9.4.2.TL.1 9.4.2.CI.2 L.2.2 9.4.2.IML.4	Compose short writing pieces digitally. Type using grade level conventions.	<ul style="list-style-type: none"> • Respond to essential questions and other exit tickets. • Write seasonal/themed quick-writes and prompts. <ul style="list-style-type: none"> ◦ Second Grade Word Processing ◦ Second Grade Word Processing • Google Docs: Halloween costume theme, Favorite holiday foods, etc. • Mini-lesson on editing: Move the cursor and click where you need to edit. 	All year
W.2.6 9.4.2.TL.2 9.4.2.TL.1 9.4.2.CI.2 L.2.2 9.4.2.IML.4 9.4.2.TL.6	Type longer writing pieces that have been previously handwritten. Type using grade level conventions.	<ul style="list-style-type: none"> • Select a writing piece from a recent writing assignment to publish. • Type up a book review to create a teleprompter for a later video recording. 	All year

9.4.2.TL.1 9.4.2.TL.2	Use formatting tools to change the font, size, color, and alignment of text.	<ul style="list-style-type: none"> Combine this with any word processing or presentation activity. Google Docs mini lesson on headings vs. main text: Google Docs Font Guidelines, Good Fonts for Headings poster Google Slides mini lesson on using fonts: Google Slides Font Guidelines Match fonts to the theme: Halloween fonts poster Mini lesson to model changing the font, size, color, and alignment of text with written directions to scaffold the process. 	All year
SL.2.5 9.4.2.CI.2 9.4.2.DC.1 9.4.2.DC.2 9.4.2.DC.6 9.4.2.IML.4 9.4.2.TL.2 9.4.2.TL.6	Draw or add images using catalogs that have the proper copyright permissions (e.g., Google Image search within Google Docs).	<ul style="list-style-type: none"> Mini lesson to model using the menus to insert an image in Google Docs and/or Google Slides with written directions to scaffold the process. Mini lesson to model using the Tools on a Google Image Search to filter the results down to Creative Commons images only (example: Plant Presentation) 	All year
L.2.2	Use spell-check features.	<ul style="list-style-type: none"> Model how to “right click” (two-finger tap or atl click) to find the correct spelling off of the list for red underlined words. 	All year
SL.2.4 SL.2.6 SL.2.5 9.4.2.TL.1	Record audio and video.	<ul style="list-style-type: none"> Allow students to choose how they want to respond to a prompt related to a curriculum topic or text. Sample Record audio or take a video within Seesaw’s creative canvas. Record video on Flipgrid. 	All year

Core Instructional & Supplemental Materials

Materials	Notes
Chromebooks	
Google Workspace for Education	
Seesaw for Schools	Some activities in this unit are made possible by a paid Seesaw for Schools subscription including the robust assessment component.
Conventions: Capitalization Poster	
Conventions: Spacing and Punctuation Poster	

Word Processing Expectations by Developmental Level	From Ten Things on Tuesday blog by Erin Kramer for teacher reference
Article on Supporting a Digital Writing Process	From Ten Things on Tuesday blog by Erin Kramer for teacher reference
Technology Explorers Poster Technology Explorer Lesson Plan	More info available on Ten Things on Tuesday
Ten Collaborative Project Ideas	From Ten Things on Tuesday blog by Erin Kramer for teacher reference
Good Fonts for Headings poster Halloween Fonts poster Google Docs Font Guidelines Google Slides Font Guidelines	

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 and loops.

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).
- **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.

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 8.2.2.NT.1 8.2.2.NT.2	<p>Identify the difference between hardware and software. Discuss and collaborate to solve hardware and software issues relevant to computer programming.</p> <p>Model and explain how a product works after taking it apart, identifying the relationship of each part, and putting it back together.</p> <p>Brainstorm how to build a product, improve a designed product, fix a product that has stopped working, or solve a simple problem in everyday life.</p>	<p>Mini-lesson to compare and contrast various hardware and software devices and the role they play in computer programming.</p> <ul style="list-style-type: none"> • Computer Parts Bingo • Parts of the Computer 	<p>1-2 weeks - continual discussion throughout the unit.</p>
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	<p>Analyze products that use code. Explain the purpose/value (i.e., what problem it solves or what task it makes easier/better).</p>	<p>Look at everyday objects that use code:</p> <ul style="list-style-type: none"> • eBooks that move or have interactive elements like Duck Duck Moose's Wheels on the Bus, Itsy Bitsy Spider, or Old MacDonald • A video of or an actual Roomba • Video Games <p>Use symbols that look like the blockly codes you will use in later lessons to represent the code you think makes it work.</p> <p>Discuss the purpose and value of the object that uses code to make it run.</p>	<p>1 week</p>
8.1.2.AP.1 9.4.2.CT.2	<p>Create algorithms for daily tasks.</p>	<p>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, sorting the garbage/recycling). Introduce coding basics with through use of mini-lesson on real world connection - How to Build a Sandcastle. BrainpopJr Computer Programming Seesaw Activity: What is an Algorithm Collaboratively develop and analyze daily algorithms. Hopscotch Coding - Unplugged Interactive Activity</p>	<p>1-2 weeks - continual discussion throughout the unit.</p>

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 and loops.	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. Kodable: Sequence 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. Code.org video on debugging	3+ weeks - continual discussion throughout the unit.

Core Instructional & Supplemental Materials

Materials	Notes
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	
Codalicious/Ellipsis	
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
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Students with 504 Plans:

- Chunked content
- Frequent breaks
- Written and/or visual instructions to supplement whole group lessons
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- 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 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>Content-Students will know:</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>Skills-Students will be able to:</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>Generate secure passwords.</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> <p>Discriminate between ownership and sharing of information.</p> <p>Select images or other digital artifacts only from catalogs that have the proper permissions.</p> <p>Design a low-waste digital device.</p>

Stage 2: Evidence of Student Learning

Summative Assessments:

- Digital Assessment folder
- Completed design of a low-waste digital device (i.e. electronically designed, paper-based, or maker-space like creation)
- [Pause & Think Moment Student Handout: Think, Pair, Share](#)

Formative Assessments:

- Digital Assessment folder
- BrainPop Jr: Quiz: [Digital Etiquette](#)

- 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"> • Model and describe how individuals are connected through networks and can use the Internet to connect worldwide. • Identify impacts/improvements of wide-spread digital access and networking including those on the natural environment. 	<p>Presentation and discussion on making global connections through use of programs (online and apps), networks, and the Internet.</p> <ul style="list-style-type: none"> • What is a network? The Internet connects us globally. <ul style="list-style-type: none"> ◦ Research, Data, and Innovation Unit link: Create a visual representation of the way we connect with others on the Internet. • Then vs. Now Epic Book Collection w/connection to Garbage and Recycling: How we communicated, worked, and played before wide-spread Internet access. <ul style="list-style-type: none"> ◦ Impacts/improvements: Reduce work, improve productivity/efficiency, saving natural resources ◦ What resources are still used? ◦ Amount of tech garbage, how tech is recycled, does it help or fuel climate change? • Digital Communication Unit Link: Engage in projects where you connect with other classes. 	1-2 weeks - continual discussion throughout the unit.
8.1.2.N I.3	Being a good online citizen- <ul style="list-style-type: none"> • Generate secure passwords. 	ABCYA: Cyber-Five : Review the 5 rules to online safety Net-Smartz Kids: Router's Birthday Surprise Net-Smartz Kids: Router's Birthday Surprise Lesson Plan	3-4 weeks - continual discussion

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	<ul style="list-style-type: none"> Identify and exhibit behaviors that keep themselves and their data safe and secure online. Discriminate between sharing and oversharing. Communicate respectfully and responsibly. 	<p>Net-Smartz Games BrainPOP Jr.: Internet Safety If You Give a Mouse an I-Phone: by Ann Droyd - Lesson on screen time limits Seesaw Digital Leadership with Bean Activities: Teacher Implementation Guide</p> <ul style="list-style-type: none"> What Is a Digital Leader Video Bean Is a Digital Leader Bean Goes on the Internet Bean Cares for a Device Bean Tries a Screen-Free Moment for 2nd Bean Keeps Information Safe for 2nd Bean’s Digital Footprint on the Internet for 1 and 2 Bean Comments on Seesaw for 2nd Bean Is and Upstander on the Internet for 2nd Bean Says, “Is That Real?” for 2nd Bean Creates a Strong Password originally for 3rd 	throughout the unit.
8.1.2.N I.3 9.4.2.DC.1 9.4.2.DC.4	Discriminate between ownership and sharing of information.	BrainPOP Jr.: Digital Etiquette	1-2 weeks - continual discussion throughout the unit.
9.4.2.DC.2	Select images or other digital artifacts only from catalogs that have the proper permissions.	<p>Let’s Give Credit Lesson Introduce students to the Insert Image feature in their Google Workspace Apps. Discuss how this way of searching for images only returns images they have permission to use. Search using Google to find Creative Commons Images.</p>	1-2 weeks - continual discussion throughout the unit.
9.4.2.CI.1 8.2.2.ITH.3 8.2.2.ITH.4 8.2.2.ITH.5 8.2.2.ETW.1 8.2.2.ETW.2 8.2.2.ETW.3 8.2.2.ETW.4 9.4.2.DC.7	Design a low-waste digital device.	<p>Mini-Lesson and small project on what technological devices have been created for global use and how we can improve these and lesson the effects on the environment</p> <ul style="list-style-type: none"> How do we reduce the impact of technology on the environment? Design a low waste digital device digitally (Google Drawings/Slides) or paper and pencil drawing (e.g. a smartphone made from recycled materials that 	1-2 weeks - continual discussion throughout the unit.

		never stops getting updates, removable camera lens/screen that can be swapped out)	
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Core Instructional & Supplemental Materials

Materials	Notes
If You Give a Mouse and iPhone by Ann Droyd	
Netsmartz -Elementary	
Common Sense Media	
K-12 Computer Science Framework Statements by Grade Band	
Prodigy Education: 7 Digital Citizenship Skills Your Students Need to Know	
Infographic: Digital Citizenship for Students	
Staying Safe Online	
Seesaw Digital Leadership with Bean Activity Teacher Implementation Guide	

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 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.

2.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s.

2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph.

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.

2-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. [Clarification Statement: Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.] [Assessment Boundary: Assessment of quantitative measurements is limited to length.]

2-PS1-3 Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. [Clarification Statement: Examples of pieces could include blocks, building bricks, or other assorted small objects.]

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.
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.

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.

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
- Completed Key Word Search Activity

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	Elephant Facts for Kids Little Explorers Research: <ul style="list-style-type: none"> • Presentation • ScreenCastify How To • Website: www.littleexplorers.com • Little Explorers Search Sheet • ABC Research Dictionary 	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	Animal Research - Google Slide with Graphic Organizers	1-2 weeks - throughout unit
9.4.2.CI.1 9.4.2.IML.1 8.1.2.DA.2	Store, copy, search, retrieve, modify, and delete data using a computing device	Animal Research - Google Slide with Graphic Organizers	1-2 weeks - throughout unit
9.4.2.IML.2	Identify and describe patterns in data visualizations	<ul style="list-style-type: none"> • Seesaw: Weather 	1-2 weeks - throughout unit

9.4.2.TL.3 8.1.2.DA.1 8.1.2.DA.3 9.4.2.TL.1		<ul style="list-style-type: none"> • Seesaw Visual Data Talks 	
9.4.2.CI.2	Adapt/design a research project topic/idea into a grade appropriate multimedia presentation (i.e. Google Slides, Google Sites)	Animal Research - Google Slide with Graphic Organizers Seesaw: Habitat Diversity	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"> • Seesaw: Wind, Water, and Land 	1-2 weeks - throughout unit
9.4.2.CT.2 9.4.2.IML.3 9.4.2.TL.5 9.4.2.TL.1	Explain why it is best to utilize multiple sites when doing research	Animal Research - Google Slide with Graphic Organizers Wilder Animal Research Site	1-2 weeks - throughout unit
9.4.2.IML.1 8.1.2.CS.1	Understand the function of keywords and keyword searches	Using Keywords (2-3)	1 week
9.4.2.DC.1 9.4.2.DC.2	Explain the need for and use of copyrights in research	Presentation: Copyright Lesson: Let's Give Credit	1-2 weeks - throughout unit

Core Instructional & Supplemental Materials

Materials	Notes
Have You Thanked an Inventor Today? By Patrice McLaurin	
Chromebooks	

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
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Students with 504 Plans:

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