



## West Windsor-Plainsboro Regional School District Information Literacy & Technology Grade 3

Unit 0: Technology Education			
Content Area: Technology Education			
Course & Grade Level: Technology Education - 3rd grade			
Summary and Rationale			
<p>The West Windsor-Plainsboro Regional School District recognizes the importance of the study 21<sup>st</sup> Century Life and Careers standards. Additionally, it is also believed this learning should not be taught in isolation and cross curricular and career ready practices are embedded in every unit of study. Unit 0 is incorporated into each unit of study of this curricular document.</p>			
Recommended Pacing:			
ELA Companion Standards and Career Ready Practices will be integrated throughout all units of study.			
Career Ready Practices			
<p>CRP1. Act as a responsible and contributing citizen and employee.</p> <p>CRP2. Apply appropriate academic and technical skills.</p> <p>CRP4. Communicate clearly and effectively and with reason.</p> <p>CRP5. Consider the environmental, social and economic impacts of decisions.</p> <p>CRP6. Demonstrate creativity and innovation.</p> <p>CRP7. Employ valid and reliable research strategies</p> <p>CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.</p> <p>CRP11. Use technology to enhance productivity.</p> <p>CRP12. Work productively in teams while using cultural global competence.</p>			
Competencies for 21 <sup>st</sup> Century Learners			
X	Collaborative Team Member	X	Effective Communicator
X	Globally Aware, Active, & Responsible Student/Citizen	X	Information Literate Researcher
X	Innovative & Practical Problem Solver	X	Self-Directed Learner

Unit 1: Introduction to Your Digital World & Interacting With Technology	
<b>Content Area:</b> Information Literacy & Technology	
<b>Course &amp; Grade Level:</b> Information Literacy & Technology, Grade 3	
Summary and Rationale	
<p>In our technology-rich world, there are basic understandings that all students need to have to be able to navigate their digital lives. Students need to have an understanding of general technology vocabulary so that they may communicate effectively in their digital environment. This unit is designed to fill in some of the missing essential general understandings of the contents of their digital lives. Students will be introduced to the basics of cloud storage and will get to discover the benefits and uses of this type of storage. Because students are immersed in technology in their daily lives, they need to be able to use a computer in an effective and expedient manner. They need a full skill set of collaborative digital tools, as well as knowledge of manipulating and navigating digital files. There are many online digital tools that allow students to create, share, and collaborate. In this unit, students will be introduced to the keyboard, and then will be using a typing program on a weekly basis to improve on their speed and accuracy. Students will be introduced to various input devices and how they interact with digital resources. They will be introduced to the Google Suite and begin to use Google Docs, Google Drive and Google Classroom. At the conclusion of this unit, students will have an ample knowledge of digital tools and be comfortable exploring their digital world using these tools in their school lives, collaboratively with their peers and teachers, as well as, personally in their own lives.</p>	
Recommended Pacing	
22 days	
New Jersey Student Learning Standards for Computer Science	
<b>DA. Data &amp; Analysis: Computing systems exist to process data. The amount of digital data generated in the world is rapidly expanding, so the need to process data effectively is increasingly important. Data is collected and stored so that it can be analyzed to better understand the world and make more accurate predictions.</b>	
CPI #	Cumulative Progress Indicator (CPI)
8.1.2.DA.2	Store, copy, search, retrieve, modify, and delete data using a computing device.
<b>CS. Computing Systems: People interact with a wide variety of computing devices that collect, store, analyze, and act upon information in ways that can affect human capabilities both positively and negatively. The physical components (hardware) and instructions (software) that make up a computing system communicate and process information in digital form.</b>	
CPI #	Cumulative Progress Indicator (CPI)
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.
<b>EC. Ethics &amp; Culture: Ethics and Culture concerns the profound effects that technologies have on people, how those effects can widen or narrow disparities, and the responsibility that people have for the societal consequences of their technological decisions.</b>	
8.2.2.EC.1	Identify and compare technology used in different schools, communities, regions, and parts of the world.
New Jersey Student Learning Standards for Design Thinking	
<b>ITH: Interaction of Humans and Technology: Societies influence technological development. Societies are characterized by common elements such as shared values, differentiated roles, and cultural norms, as well as by entities such as community institutions, organizations, and businesses. Interaction of Technology and Humans</b>	

concerns the ways society drives the improvement and creation of new technologies, and how technologies both serve and change society.	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
8.2.2.ITH.4	Identify how various tools reduce work and improve daily tasks.
<b>ISTE Standards for Students</b>	
<b>Empowered Learner: Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
1d	Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.
<b>Creative Communicator: Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
6a	Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
6b	Students create original works or responsibly repurpose or remix digital resources into new creations.
6c	Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
6d	Students publish or present content that customizes the message and medium for their intended audiences.
<b>New Jersey Student Learning Standards for English Language Arts Companion Standards</b>	
<b>Standard: Writing</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
CCSS.ELA-LITERACY.W.3.6	With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.
<b>New Jersey Student Learning Standards for Career Readiness, Life Literacies, and Key Skills</b>	
<b>CI. Creativity &amp; Innovation: Creativity includes the use of a wide range of idea-creation techniques (such as brainstorming) to generate new and worthwhile ideas (both incremental and radical concepts). Additionally, within creativity, flexibility is evident through the elaboration, refinement, analysis and evaluation of ideas in order to maximize creative efforts. Originality and inventiveness in work may also be evident while understanding the real-world limits to adopting new ideas. Failure is viewed as an opportunity to learn and adapt as well as understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives
9.4.2.CI.2	Demonstrate originality and inventiveness in work
<b>TL. Technology Literacy</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
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.
9.4.5.TL.5	Collaborate digitally to produce an artifact
9.4.2.TL.6	Illustrate and communicate ideas and stories using multiple digital tools
<b>New Jersey Student Learning Standards for Visual &amp; Performing Arts</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>

1.2.2.Pr4a	With guidance and moving towards independence, combine art forms and media content into media artworks such as an illustrated story or narrated animation.
1.2.2.Pr4b	Practice combining varied academic, arts and media content to form media artworks.
<b>Instructional Focus</b>	
<b>Unit Enduring Understandings</b>	
<ul style="list-style-type: none"> <li>Digital media are 21st-century tools used for storing data, accessing data, and local and global communication.</li> <li>The use of digital tools requires students to have general understandings of the tools and how to use them appropriately.</li> <li>Technology products and systems impact our life and change over time.</li> <li>Online cloud services are a place where we can store our files in cloud storage and share them with others.</li> <li>Online services allow us many capabilities, such as adding pictures, videos, and URLs, as well as collaborating on files in live time.</li> <li>By selecting and manipulating different features of text, we can format documents and presentations to fit particular design needs.</li> <li>By interacting with digital tools, we can explore and utilize various resources.</li> <li>By interacting with digital tools, we can create and design.</li> </ul>	
<b>Unit Essential Questions</b>	
<ul style="list-style-type: none"> <li>What are the ways that we use digital technology in our daily lives?</li> <li>How does digital technology help us in our daily lives?</li> <li>What are the ways we can save our files and data? How can we organize them?</li> <li>What is the cloud?</li> <li>What are the benefits of the cloud over previous technology for saving and accessing our data?</li> <li>What is a website URL?</li> <li>What technology terms are useful for us to be familiar with for ease of use?</li> <li>How is the keyboard setup?</li> <li>How should hands be placed on the keyboard to gain benefits in typing accuracy and speed?</li> <li>What is a document?</li> <li>How do I create and format documents (font, font size, text and background color, bold, italicize, underline, insert link, insert images, add bullets, align text)?</li> <li>How do I share my document with others so that we may collaborate on it?</li> <li>What is a presentation?</li> <li>How do I create and format presentations (font, how to create, edit, and format text boxes, font size, text color, background color/image, bold italicize, and underline text, insert links, add bullets, align text in a text box)?</li> <li>How do I share my presentation with others so that we may collaborate on it?</li> <li>How do I navigate a digital environment (scroll, cut, copy, paste, drag an item, draw, erase, paint, glue an item to the background, navigate to different parts of and tools on a website)?</li> </ul>	
<b>Objectives</b>	
<b>Students will know and be able to:</b> <ul style="list-style-type: none"> <li>Explain how digital media are used in our daily lives, in a variety of formats, and for a variety of purposes.</li> <li>Explain how technology has strengthened our ability to save and access information anywhere we are, as part of a global society.</li> <li>Log into online authoring platforms and save work onto a cloud.</li> </ul>	

- Identify the different parts of the computer, and more specifically the keyboard (“power keys” e.g., Enter, Spacebar) .
- Demonstrate effective input of text and data using an input device.
- Place their hands correctly on the keyboard.
- Use the mouse to access menus.
- Use keyboard shortcuts.
- Understand basic technology terms.
- Input data and text into a document
- Use a digital resource to format text and add graphics.
- Utilize digital tools to help us create multimedia projects.
- Insert text, pictures, stickers, backgrounds, and sounds into multimedia projects.
- Engage in online communication with peers and students.
- Collaboratively complete a multimedia project with peers using a digital platform.
- Save and access files online.
- Communicate via digital tools

### Evidence of Learning

#### Assessment

Common Assessment 1: Use of Digital Tools

Common Assessment 2: Preparing Content for Varying Audiences

Common Assessment 3: Digital Design

#### Competencies for 21<sup>st</sup> Century Learners

X	Collaborative Team Member	X	Effective Communicator
	Globally Aware, Active, & Responsible Student/Citizen		Information Literate Researcher
X	Innovative & Practical Problem Solver	X	Self-Directed Learner

### Resources

<https://jr.brainpop.com/artsandtechnology/technology/partsofacomputer/> Parts of Computer

<https://www.youtube.com/watch?v=LwVX42Amcak> What is Chrome

<http://www.minimouse.us/index.html> Mouse Manipulation

[https://www.abcya.com/games/take\\_a\\_trip](https://www.abcya.com/games/take_a_trip) Mouse Manipulation

[https://www.abcya.com/games/find\\_the\\_tech](https://www.abcya.com/games/find_the_tech) Hardware and Software

[https://www.abcya.com/games/typing\\_rocket](https://www.abcya.com/games/typing_rocket) Mouse Manipulation

<https://www.bbc.co.uk/bitesize/topics/zf2f9j6/articles/z3c6tfr> Keyboarding

<https://www.youtube.com/watch?v=mCq8-xTH7jA> The 4 Functions of a Computer

<http://www.tech4learning.com/wixie> Wixie

<https://wwprsd.typingagent.com/> Keyboarding

[https://www.abcya.com/games/make\\_a\\_robot](https://www.abcya.com/games/make_a_robot) Mouse Manipulation

[http://www.abcya.com/word\\_clouds.htm](http://www.abcya.com/word_clouds.htm) Word Clouds

<http://www.schooltube.com/video/72fea4567c54a813de3c/Basic%20Keyboarding> Keyboarding

[http://www.youtube.com/watch?v=EiN\\_NL507pU&list=PLhrBKfgDdV049\\_R2L2NluBVoeVTMt12b](http://www.youtube.com/watch?v=EiN_NL507pU&list=PLhrBKfgDdV049_R2L2NluBVoeVTMt12b) Keyboarding

<http://www.special-needs-software.co.uk> Special Needs

<https://sites.google.com/site/specialneedsgamesonline/on-line-games/switch-games> Special Needs

<https://www.youtube.com/watch?v=G5P7nVbQWJc> Google Classroom

## Unit 2: Digital Citizenship, Search Literacy & Research

**Content Area:** Information Literacy & Technology

**Course & Grade Level:** Information literacy & Technology, Grade 3

### Summary and Rationale

Digital citizenship is an all-inclusive term that comprises the norms of appropriate, responsible behavior with regard to technology use. Sometimes referred to as cyber ethics, it addresses a fundamental question: How should we behave when we are online? For educators dealing with the growth of educational initiatives involving digital resources, the question may be rephrased: What should be taught to the next generation about the responsible use of technology?

More than ever, information is literally at the fingertips of students through smartphones, iPads, tablet computers, and other digital devices. With the exponential growth of readily available digital content, an academic challenge presents itself: How do we help students navigate the vast landscape of online information while still learning the skills of search literacy and digital citizenship? In this unit, students will learn how to uphold basic standards of academic integrity while researching online, how to adopt standards of digital etiquette when engaging in electronic exchanges of information, and how to handle situations in which others do not demonstrate digital etiquette. They will learn how to properly conduct themselves while using digital tools, respecting others and assuming accountability for their own behavior when consuming, authoring, posting, and sharing online information. They will also learn and explore methods for finding information on the web suitable for their particular needs (e.g., interest, reading level, appropriateness, educational relevance, etc.).

### Recommended Pacing

7 days

### New Jersey Student Learning Standards for Computer Science

**NI. Networks and the Internet: Computing devices typically do not operate in isolation. Networks connect computing devices to share information and resources and are an increasingly integral part of computing. Networks and communication systems provide greater connectivity in the computing world.**

CPI #	Cumulative Progress Indicator (CPI)
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.NI.4	Explain why access to devices need to be secured.
8.1.5.NI.2	Describe physical and digital security measures for protecting sensitive personal information.

**IC. Impacts of Computing: Computing affects many aspects of the world in both positive and negative ways at local, national, and global levels. Individuals and communities influence computing through their behaviors and cultural and social interactions, and, in turn, computing influences new cultural practices.**

CPI #	Cumulative Progress Indicator (CPI)
8.1.2.IC.1	Compare how individuals live and work before and after the implementation of new computing technology.

<b>CS. Computing Systems: People interact with a wide variety of computing devices that collect, store, analyze, and act upon information in ways that can affect human capabilities both positively and negatively. The physical components (hardware) and instructions (software) that make up a computing system communicate and process information in digital form.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator</b>
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.
<b>New Jersey Student Learning Standards for English Language Arts Companion Standards</b>	
<b>Standard: Reading Informational Text</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
CCSS.ELA-LITERACY.RI.3.1	Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
CCSS.ELA-LITERACY.RI.3.5	Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
<b>New Jersey Student Learning Standards for Career Readiness, Life Literacies, and Key Skills</b>	
<b>DC. Digital Citizenship</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
9.4.2.DC.1	Explain differences between ownership and sharing of information.
9.4.5.DC.1	Explain the need for and use of copyrights.
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.
9.4.5.DC.7	Explain how posting and commenting in social spaces can have positive or negative consequences.
<b>CT. Critical Thinking &amp; Problem Solving: Critical Thinking &amp; Problem Solving: Critical thinking involves the ability to use various types of reasoning as appropriate to the situation. Essential to critical thinking is systems thinking, which analyzes how parts of a whole interact together to produce outcomes. Critical thinking also includes making judgements and decisions by analyzing evidence, claims, points of view then communicating the interpretation of both the information and conclusions based on the best analysis. In tandem with critical thinking, problem solving involves the ability to generate and execute a solution to a problem. Problem solving occurs through one's use of initiative and flexibility to use trial and error to solve a problem until a successful solution is found.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
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
<b>IML: Information &amp; Media Literacy: Information and Media Literacy empowers learners to access, retrieve and produce well managed resources. This access promotes and fosters inquiry learning as well as a deep understanding of target knowledge, skills or concepts. Information and Media Literacy is the vehicle for learners to pursue and create relevant information using the opportunities of high-quality materials. Information and media literacy also includes a basic understanding of ethical use of information.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
9.4.2.IML.1	Identify a simple search term to find information in a search engine or digital resource.



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
<b>ISTE Standards for Students</b>	
<b>Digital Citizenship: Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
2a	Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
2b	Students engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices.
2d	Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.
<b>Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
3a	Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
3b	Students evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.
3c	Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.
3d	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
<b>Instructional Focus</b>	
<b>Unit Enduring Understandings</b>	
<ul style="list-style-type: none"> <li>• Digital citizens make wise decisions regarding online safety and security.</li> <li>• The use of technology and digital tools requires knowledge and appropriate use of operations and related applications.</li> <li>• Digital citizens understand the need to be respectful and responsible in the online world.</li> <li>• Digital citizens protect private information for themselves and others.</li> <li>• Digital citizens respect themselves and others in online communities.</li> <li>• Effective communication skills convey intended meaning to others and assist in preventing misunderstandings.</li> <li>• Digital media are 21st-century tools used for communication.</li> <li>• There are ethical and unethical uses of communication and media.</li> <li>• The identification of key ideas and details is essential in the interpretation of text.</li> <li>• The use of technology and digital tools requires knowledge and appropriate use of operations and related applications.</li> <li>• Effective use of digital tools assists in gathering and managing information.</li> <li>• The ability to recognize a problem and apply critical thinking and problem-solving skills to solve the problem is a lifelong skill that develops over time.</li> <li>• Brainstorming activities enhance creative and innovative thinking in individual and group goal setting and problem solving.</li> <li>• Collaboration and teamwork enable individuals or groups to achieve common goals with greater efficiency.</li> <li>• Collaboration with peers fosters the development of one's own comprehension and development of ideas.</li> <li>• Digital citizens evaluate the quality of websites for specific tasks.</li> </ul>	

- The use of precise language and appropriate search operators improves the relevance and accuracy of search results.
- Digital citizens responsibly locate, evaluate, and ethically use information from a variety of digital sources.

### **Unit Essential Questions**

- How do I stay safe on a digital device or online?
- How do I decide what to share when using a digital device or online?
- What behaviors constitute cyberbullying?
- How does cyberbullying differ from real-life bullying?
- Are the psychological and emotional outcomes of cyberbullying any worse than those of real-life bullying?
- What role does anonymity play in one's inclination to bully another using the Internet or other technologies?
- Why would one engage in cyberbullying?
- What are the best ways to deal with cyberbullying?
- What are the best ways to prevent cyber bullying?
- What does it mean to search on the web?
- With so much information now available at our fingertips (via digital devices such as smartphones, iPads, tablet computers, etc.), is it easier or more difficult to find information?
- How does one perform a basic search?
- How can I find information using keywords?
- How does search efficiency assist one's informational needs?
- What does it mean to adjust a search, and when should one make those adjustments?
- How do I know if a website is good for my purpose?
- How do you show respect for other's work?
- How do you manage your digital footprint?

### **Objectives**

#### **Students will know and be able to:**

- Determine the benefits of digital tools by using them to explain the concepts of digital citizenship and solve problems.
- Explain the need for each individual, as a member of the global community, to practice cyber safety, cyber security, and cyber ethics when using existing and emerging technologies.
- Explain the consequences of inappropriate use of technology.
- Recognize a problem and brainstorm ways to solve the problem individually or collaboratively.
- Use effective oral and written communication in face-to-face and online interactions and when presenting to an audience.
- Engage effectively in a range of online collaborative exercises, building on others' ideas and expressing their own clearly.
- Follow agreed-upon rules for online and in-person classroom discussions.
- Demonstrate effective input of text and data using an input device.
- Evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.
- Select and apply digital tools to collect, organize, and analyze data that support a scientific finding.
- Apply critical thinking and problem-solving skills in classroom research.
- Practice collaborative skills in groups, and explain how these skills assist in completing tasks.
- Explain how digital media are used in daily life in a variety of settings (e.g. social media platforms).
- Determine the main idea of a text and explain how it is supported by key details; summarize the text.
- Interpret information presented visually, orally, or quantitatively.
- Read and comprehend appropriate grade-level informational text embedded in digital resources.

- Search different kid-friendly search engines to support your research.
- Draw on information known about a topic to explore related ideas about that topic.

### Evidence of Learning

#### Assessment

Common Assessment 1: Vetting and Curation of Resources

Common Assessment 2: Digital Citizenship

#### Competencies for 21<sup>st</sup> Century Learners

X	Collaborative Team Member	X	Effective Communicator
X	Globally Aware, Active, & Responsible Student/Citizen	X	Information Literate Researcher
X	Innovative & Practical Problem Solver	X	Self-Directed Learner

### Resources

<https://jr.brainpop.com/artsandtechnology/technology/internetsafety/> Internet Safety

<https://www.brainpop.com/technology/communications/cyberbullying/> Cyberbullying

<https://www.commonsense.org/education/videos/private-and-personal-information> Personal/Private

<https://www.youtube.com/watch?v=-N7lRYMmbXU> Digital Citizenship

<https://www.youtube.com/watch?v=ju9aOc2MLyo> Digital Citizenship

<http://www.proprofs.com/quiz-school/story.php?title=online-safetycyber-bullying-quiz> Online Safety Quiz

#### FROM SEARCH LIT:

<https://legacy.kyvl.org/kids/portal.html> How to Research

<https://www.brainpop.com/technology/computerscience/internetsearch/> Internet search

<http://www.kidtopia.info/> Search Site

<http://www.kidrex.org/> Search Site

<https://www.sciencekids.co.nz/> Search Site

<http://www.nettrekker.com/us/> Search Site

<http://www.ipl.org/div/kidspace/> Search Site

<http://www.sweetsearch.com/> Search Site

<http://www.ask.com/> Search Site

<http://cybersleuth-kids.com/> Search Site

<http://novemberlearning.com/educational-resources-for-educators/information-literacy-resources/> Search Site

Unit 3: Digital Assessment Integration	
<b>Content Area:</b> Information Literacy & Technology	
<b>Course &amp; Grade Level:</b> Information Literacy & Technology, Grade 3	
Summary and Rationale	
As testing moves toward a digital presence, we need to assist our students with the "How to's" of taking online assessments. In order to achieve this, it behooves us to help students understand fundamental computer terms (e.g. copy, cut, paste, select, drop down, etc.) and methods for navigating the digital assessment landscape. For example, students will be faced with the unfamiliar challenges posed by mouse manipulation within various sections, interactive engagement with text, and competent use of digital tools. In this unit, students will learn how to create their own digital assessment. They will use digital tools, graphics, and other forms of media to create and evaluate digital assessments with their peers. By creating their own assessments, they will gain confidence used to complete online assessments in the future.	
Recommended Pacing	
2 days	
New Jersey Student Learning Standards for Computer Science	
<b>CS. Computing Systems:</b> People interact with a wide variety of computing devices that collect, store, analyze, and act upon information in ways that can affect human capabilities both positively and negatively. The physical components (hardware) and instructions (software) that make up a computing system communicate and process information in digital form.	
CPI #	Cumulative Progress Indicator
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.
New Jersey Student Learning Standards for Career Readiness, Life Literacies, and Key Skills	
<b>CT. Critical Thinking &amp; Problem Solving:</b> Critical thinking involves the ability to use various types of reasoning as appropriate to the situation. Essential to critical thinking is systems thinking, which analyzes how parts of a whole interact together to produce outcomes. Critical thinking also includes making judgements and decisions by analyzing evidence, claims, points of view then communicating the interpretation of both the information and conclusions based on the best analysis. In tandem with critical thinking, problem solving involves the ability to generate and execute a solution to a problem. Problem solving occurs through one's use of initiative and flexibility to use trial and error to solve a problem until a successful solution is found.	
CPI #	Cumulative Progress Indicator (CPI)
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
9.4.5.CT.3	Describe how digital tools and technology may be used to solve problems.
TL. Technology Literacy	
CPI #	Cumulative Progress Indicator (CPI)
9.4.2.TL.1	Identify the basic features of a digital tool and explain the purpose of the tool
Instructional Focus	
Unit Enduring Understandings	
<ul style="list-style-type: none"> <li>Digital environments are specialized to meet certain needs (e.g., to inform, to persuade, to entertain, to assess, etc.).</li> <li>In order for one to interact appropriately within a digital environment, one must be adept at manipulating digital tools particular to that environment.</li> </ul>	

<ul style="list-style-type: none"> <li>Standardized testing is one form of assessment that assists teachers with refining their programs and improving student learning.</li> </ul>			
<b>Unit Essential Questions</b>			
<ul style="list-style-type: none"> <li>How does our knowledge of digital tools impact our performance on various forms of assessment? What do I need to know in order to effectively and efficiently respond to questions posed in an online assessment environment?</li> <li>How can I best prepare myself to perform well on an online assessment?</li> <li>How do I transition between sections, focus on discrete instructions, employ the proper tools, and successfully respond to various types of assessment items?</li> </ul>			
<b>Objectives</b>			
<b>Students will know and be able to :</b> <ul style="list-style-type: none"> <li>Familiarize themselves with online assessment environments.</li> <li>Respond to various types of online assessment items.</li> <li>Recognize the disadvantages while capitalizing on the advantages provided by an online assessment environment.</li> <li>Experience, sample, and practice with authentic online assessment items.</li> <li>Transition between sections, focus on discrete instructions, employ the proper tools, and successfully respond to various types of assessment items.</li> <li>Employ such specific skills as mouse clicking, dragging and dropping, selecting/highlighting, scrolling, inputting text, switching modes, manipulating digital tools, connecting headphones, interacting with videos, forwarding slideshows and test items, filling in boxes, maneuvering through a website without distraction, working on a computer for extended periods of time, and troubleshooting basic tech problems (e.g., caps lock not working, volume not loud enough, monitor suddenly malfunctioning, etc.).</li> <li>Seek assistance for technical difficulties.</li> <li>Create sample problems and item types that reflect their learning throughout the unit.</li> </ul>			
<b>Evidence of Learning</b>			
<b>Assessment</b>			
Common Assessment 1: Understanding Online Assessments			
<b>Competencies for 21<sup>st</sup> Century Learners</b>			
	Collaborative Team Member	X	Effective Communicator
	Globally Aware, Active, & Responsible Student/Citizen		Information Literate Researcher
X	Innovative & Practical Problem Solver	X	Self-Directed Learner
<b>Resources</b>			
<a href="https://nj.mypearsonsupport.com/tutorial/">https://nj.mypearsonsupport.com/tutorial/</a> TestNav <a href="http://www.parcconline.org/practice-tests">http://www.parcconline.org/practice-tests</a> Test Resources <a href="http://www.teachhub.com/how-prepare-students-parcc-tests">http://www.teachhub.com/how-prepare-students-parcc-tests</a> Test Resources			

<b>Unit 4: Computer Programming, Design Thinking, and Engineering</b>	
<b>Content Area:</b> Information Literacy & Technology	
<b>Course &amp; Grade Level:</b> Information Literacy & Technology, Grade 3	

### Summary and Rationale

Computer programming is a distinct academic discipline that also serves to augment the study of other domains. It helps students further develop skills in the areas of logical thinking, problem solving, persistence, collaboration, and communication. In this unit, students will learn the fundamentals of coding, including the uniqueness and exactitude of programming language, the analytical flow of computational thinking, and the employment of computer programs in controlling devices, tools, websites, etc. By learning how to code on a large scale, children will transition from their limited roles as technology consumers to much more expansive roles as technology producers. Students will work with programmable floor robots and learn the importance of giving accurate instruction to a device. They will collaborate their efforts and use the ideas of design thinking to guide them along the way. Students will also learn that design thinking is a process of creative problem solving. It is a practical approach that evolved from a range of different fields — including architecture, engineering, and business. Students will ask questions, define problems, interpret criteria, identify constraints, generate programming code to solve problems, test programs, build structures, compare results, and adjust variables to optimize design solutions.

### Recommended Pacing

9 days

### New Jersey Student Learning Standards for Computer Science

**AP. Algorithms & Programming:** An algorithm is a sequence of steps designed to accomplish a specific task. Algorithms are translated into programs, or code, to provide instructions for computing devices. Algorithms and programming control all computing systems, empowering people to communicate with the world in new ways and solve compelling problems.

CPI #	Cumulative Progress Indicator (CPI)
8.1.2.AP.1	Model daily processes by creating and following algorithms to complete tasks.
8.1.5.AP.1	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
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
8.1.5.AP.5	Modify, remix, or incorporate pieces of existing programs into one's own work to add additional features or create a new program.
8.1.2.AP.6	Debug errors in an algorithm or program that includes sequences and simple loops.

**NI. Networks and the Internet:** Computing devices typically do not operate in isolation. Networks connect computing devices to share information and resources and are an increasingly integral part of computing. Networks and communication systems provide greater connectivity in the computing world.

CPI #	Cumulative Progress Indicator (CPI)
8.1.5.NI.1	Develop models that successfully transmit and receive information using both wired and wireless methods

### New Jersey Student Learning Standards for Design Thinking

**ED. Engineering Design:** People design for enjoyment and to solve problems, extend human capabilities, satisfy needs and wants, and improve the human condition. Engineering Design, a systematic approach to creating solutions to technological problems and finding ways to meet people's needs and desires, allows for the effective and efficient development of products and systems.

CPI #	Cumulative Progress Indicator (CPI)
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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.
8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
8.2.2.ED.3	Select and use appropriate tools and materials to build a product using the design process.
8.2.5.ED.3	Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.
8.2.2.ED.4	Identify constraints and their role in the engineering design process.
<b>NT. Nature of Technology: Human population, patterns and movement focus on the size, composition, distribution, and movement of human populations and how they are fundamental and active features on Earth's surface. This includes understanding that the expansion and redistribution of the human population affects patterns of settlement, environmental changes, and resource use. Patterns and movements of population also relate to physical phenomena including climate variability, landforms, and locations of various natural hazards and their effects on population size, composition, and distribution.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
8.2.2.NT.2	Brainstorm how to build a product, improve a designed product, fix a product that has stopped working, or solve a simple problem.
<b>ETW. Effects of Technology on the Natural World: Many of engineering and technology's impacts on society and the environment are widely regarded as desirable. However, other impacts are regarded as less desirable. Effects of Technology on the Natural World concerns the positive and negative ways that technologies affect the natural world.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
8.2.5.ETW.1	Describe how resources such as material, energy, information, time, tools, people, and capital are used in products or systems.
8.2.5.ETW.3	Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved.
8.2.5.ETW.4	Explain the impact that resources, such as energy and materials used to develop technology, have on the environment.
<b>New Jersey Student Learning Standards for English Language Arts Companion Standards</b>	
<b>SL. Speaking &amp; Listening</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
CCSS.ELA-LITERACY.SL.3.1.B	Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
CCSS.ELA-LITERACY.SL.3.1.C	Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
CCSS.ELA-LITERACY.SL.3.1.D	Explain their own ideas and understandings in light of discussion.
<b>New Jersey Student Learning Standards for Career Readiness, Life Literacies, and Key Skills</b>	
<b>CT. Critical Thinking &amp; Problem Solving: Critical thinking involves the ability to use various types of reasoning as appropriate to the situation. Essential to critical thinking is systems thinking, which analyzes how parts of a whole interact together to produce outcomes. Critical thinking also includes making judgements and decisions by analyzing evidence, claims, points of view then communicating the interpretation of both the information and conclusions</b>	

<b>based on the best analysis. In tandem with critical thinking, problem solving involves the ability to generate and execute a solution to a problem. Problem solving occurs through one's use of initiative and flexibility to use trial and error to solve a problem until a successful solution is found.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
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
<b>CI. Creativity &amp; Innovation: Creativity includes the use of a wide range of idea-creation techniques (such as brainstorming) to generate new and worthwhile ideas (both incremental and radical concepts). Additionally, within creativity, flexibility is evident through the elaboration, refinement, analysis and evaluation of ideas in order to maximize creative efforts. Originality and inventiveness in work may also be evident while understanding the real-world limits to adopting new ideas. Failure is viewed as an opportunity to learn and adapt as well as understand that creativity and innovation is a long-term, cyclical process of small successes and frequent mistakes.</b>	
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives
9.4.2.CI.2	Demonstrate originality and inventiveness in work
9.4.5.CI.4	Research the development process of a product and identify the role of failure as a part of the creative process
<b>ISTE Standards for Students</b>	
<b>Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
4a	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
4b	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
4c	Students develop, test and refine prototypes as part of a cyclical design process.
4d	Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.
<b>Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
5c	Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.
5d	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.
<b>Global Collaborator: Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
7b	Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.
7c	Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.
<b>Next Generation Science Standards for New Jersey</b>	
<b>ETS1 Engineering Design</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>



3-5-ETSI1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
3-5-ETSI1-2	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
<b>Instructional Focus</b>	
<b>Unit Enduring Understandings</b>	
<ul style="list-style-type: none"> <li>• Special machines called robots can be programmed to do different things.</li> <li>• Bee-Bots are programmable floor robots that have been built with the purpose to help students learn.</li> <li>• You can estimate the distance between different objects.</li> <li>• Engineers work together using shared norms and practices to accomplish goals.</li> <li>• Procedural Programming is the basic mechanism that computer programs use to execute a program</li> <li>• Selection Statements allow a program to make decisions while the program is executing</li> <li>• Structures allow a program to repeat a set of actions for a constant or variable number of times</li> <li>• The Engineering Design Process is a method that is used to solve technological challenges.</li> <li>• The Engineering Design Process gives structure to creativity.</li> <li>• Students will exhibit tolerance for working with ambiguity and open-endedness.</li> </ul>	
<b>Unit Essential Questions</b>	
<ul style="list-style-type: none"> <li>• How can you make your Bee-Bot move in different ways?</li> <li>• How far can Bee-Bot go in one step?</li> <li>• Can you make a Bee-Bot count?</li> <li>• Can you make your Bee-Bot follow a path?</li> <li>• Can you estimate (or guess) how far apart 2 objects are?</li> <li>• Can you measure Bee-Bot trail and convert it into Bee-Bot specific units of measure?</li> <li>• Why do software engineers develop computer programs to control technology systems?</li> <li>• How has system control technology and robotics systems changed the way we manufacture products?</li> <li>• How can system control be used in school, work, and home applications?</li> <li>• How does the Engineering Design Process relate to problem solving and critical thinking?</li> <li>• What role does creativity have in Engineering Design?</li> <li>• When my design doesn't work the first time, how should I handle it?</li> </ul>	
<b>Objectives</b>	
<b>Students will know and be able to:</b> <ul style="list-style-type: none"> <li>• Develop an understanding of computer science and coding.</li> <li>• Program a robot to move forward and backward and turn right or left.</li> <li>• Understand that robots move in a consistent and standard unit of measure</li> <li>• Estimate a robot trail and convert it into specific units of measure then programming it to follow the trail.</li> <li>• Model the process of designing a robot trail, emphasising the importance of measuring the trail to ensure the robot can reach and turn at particular points.</li> <li>• Design a robot obstacle course using concrete materials such as blocks, boxes and manipulatives and ask students to safely move their robot through the course.</li> <li>• Create a code for their robot that follows a specific set of commands and constraints.</li> <li>• Create a code for your robot to safely reach a destination from a starting position.</li> <li>• Design code to reach multiple destinations in the same sequence.</li> <li>• Plan and implement a design to create a multi-dimensional structure collaboratively.</li> <li>• Explain the steps in the design and engineering process</li> </ul>	

- Describe the roles of science and technology to think critically and solve problems
- Use the engineering design process to solve design challenges
- Persist in solving difficult problems and recognize the value of failed attempts.

### Evidence of Learning

#### Assessment

Common Assessment 1: Foundational Computer Science Skills

Common Assessment 2: The Engineering Design Process

#### Competencies for 21<sup>st</sup> Century Learners

X	Collaborative Team Member	X	Effective Communicator
	Globally Aware, Active, & Responsible Student/Citizen		Information Literate Researcher
X	Innovative & Practical Problem Solver	X	Self-Directed Learner

### Resources

[https://www.youtube.com/watch?v=d3rFaICLFBw&list=PL-ACL3CpLMKyRIFd0xPUIPlpYRBfRBKca&disable\\_polymer=true](https://www.youtube.com/watch?v=d3rFaICLFBw&list=PL-ACL3CpLMKyRIFd0xPUIPlpYRBfRBKca&disable_polymer=true)  
<https://www.pinterest.com/lyndacutting/beebots-4-learning/> Bee Bot Activities  
<http://www.scoop.it/t/bee-bots-and-pro-bots> Bee Bot Activities  
<http://www.slideshare.net/sandracosta0/bee-bot-presentation-022013> Bee Bot Activities  
<http://www.communication4all.co.uk/http/bee-bot.htm> Bee Bot Activities  
<https://www.youtube.com/watch?v=m5d4iXGblGs&list=PLYyLbVbOEKqIZbBm7K3lI8i1VNmicjHYO&index=3> OzoBots  
<https://jr.brainpop.com/artsandtechnology/technology/engineeringanddesignprocess/> BrainPop Design Process  
[Code.org](http://code.org) Code.org  
<https://www.youtube.com/watch?v=rnAVQZvBfOA> Marshmallow Toothpick Engineering Challenge  
<https://www.youtube.com/watch?v=9yCQLzE7bbw> Toothpick Engineering  
[https://www.youtube.com/watch?v=r0VX-aU\\_T8](https://www.youtube.com/watch?v=r0VX-aU_T8) Design Thinking  
<https://www.youtube.com/watch?v=hvqST2ggvA0> Design Thinking  
[https://www.youtube.com/watch?v=YB\\_QhFFpPLs](https://www.youtube.com/watch?v=YB_QhFFpPLs) Design Thinking