



West Windsor-Plainsboro Regional School District Information Literacy & Technology Grade 4

Unit 0: Technology Education			
Content Area: Technology Education			
Course & Grade Level: Technology Education - Grade 4			
Summary and Rationale			
<p>The West Windsor-Plainsboro Regional School District recognizes the importance of the study 21st 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 st Century Learners			
✓	Collaborative Team Member	✓	Effective Communicator
✓	Globally Aware, Active, & Responsible Student/Citizen	✓	Information Literate Researcher
✓	Innovative & Practical Problem Solver	✓	Self-Directed Learner

Unit 1: Exploring the Digital World	
Content Area: Information Literacy & Technology	
Course & Grade Level: Information Literacy & Technology, Grade 4	
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. A large part of their digital world is accessing online information. Though they search for information very quickly using search terms, they are missing the background knowledge on what they are actually accessing. This unit is designed to fill in some of the missing essential general understandings of the contents of their digital lives. Going further, in this unit, students will be asked to think about the ways in which they hold onto their information and files, and how they access them. Students will be introduced to cloud storage and will get to discover the benefits and uses of this type of storage. This understanding will help them grasp the concept of Google Drive in the following unit. 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. In this unit, students will get a review of the keyboard, and then will be using a typing program on a weekly basis to improve their speed and accuracy so that they may move through their digital world with ease. They will also be asked to format and add graphics to a Google Doc then turn it in on Google Classroom.</p>	
Recommended Pacing	
6 days	
New Jersey Student Learning Standards for	
Standard: Standard 8.1 Computer Science	
CPI #	Cumulative Progress Indicator (CPI)
8.1.5.CS.1	Model how computing devices connect to other components to form a system
8.1.5.CS.2	Model how computer software and hardware work together as a system to accomplish tasks
8.1.5.CS.3	Identify potential solutions for simple hardware and software problems using common troubleshooting strategies
ISTE Standards for Students	
Empowered Learner	
CPI #	Cumulative Progress Indicator (CPI)
1c	Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways
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
Creative Communicator	
6a	Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication
Interdisciplinary Standards (Science, SS, etc..)	
Instructional Focus	
Unit Enduring Understandings	

- Digital media are 21st-century tools used for storing data, accessing data, and local and global communication.
- The use of digital tools requires students to have general understandings of the tools and how to use them appropriately.
- Technology products and systems impact our lives and change over time.
- Students use a variety of digital tools and resources to construct knowledge and produce creative works and meaningful learning projects.
- Google Classroom is a place where teachers and students can share assignments and announcements, and communicate ideas.
- Google documents can import, create, edit and update information in various fonts and file formats, combining text with formulas, lists, tables and images.

Unit Essential Questions

- What are the ways that we use digital technology in our daily lives?
- How does digital technology help us in our daily lives?
- What are the ways we can save our files and data?
- What is the cloud?
- What are the benefits of the cloud over previous technology for saving and accessing our data?
- What are ways to create a document, spreadsheet, and slides in Google?
- How Can we use Google suite applications to share my ideas effectively?
- How can we use Google Classroom to disseminate, share, and collect information?
- What are the features of the computer I will primarily be working on?
- How is the keyboard setup?
- How should hands be placed on the keyboard to gain benefits in typing accuracy and speed?

Objectives

Students will know and be able to:

- Explain how digital media are used in our daily lives, in a variety of formats, and for a variety of purposes.
- Explain how technology has strengthened our ability to save and access information anywhere we are, as part of a global society.
- Explain how the cloud works.
- Identify the different parts of the computer, and more specifically the keyboard (e.g., power keys such as Enter and Spacebar)
- Place their hands correctly on the keyboard.
- Use the mouse to access menus.
- Use keyboard shortcuts.
- Understand basic technology terms.

Evidence of Learning

Assessment

Common Assessment 1: Use of Digital Tools

Common Assessment 2: Digital Collaboration and Sharing

Competencies for 21st Century Learners

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

Resources

Core Text:

<https://www.brainpop.com/technology/communications/cloudcomputing/> Cloud Computing
https://www.youtube.com/watch?v=TTNgV0O_oTg&t=9s Cloud Computing Frank
<https://www.youtube.com/watch?v=zUjU7xY-ZvQ> Google Classroom
<https://www.youtube.com/watch?v=0RFelfHmndA> Typing Training
http://www.abcya.com/word_clouds.htm Word Clouds
<https://www.youtube.com/watch?v=oRxm2CmbSew&t=3s> Screencastify
<http://www.schooltube.com/video/9a4a7ba9456478ff8d48/How%20to%20Type> Typing
<https://www.youtube.com/watch?v=478TDzL1b3E> What is Google Docs
<https://www.youtube.com/watch?v=jvV5SS6rP4o> Formatting Google Docs
<https://www.youtube.com/watch?v=rd4Um5Ceywk> Insert Images Google Docs
<http://www.schooltube.com/video/f9cb3a948ae14456bb86/Google%20Docs%20in%20Plain%20English> Google docs
<http://www.slideshare.net/andymatic/anatomy-of-a-domain-name-and-url> URLs

Unit 2: Digital Citizenship and Information Literacy	
Content Area: Information Literacy & Technology	
Course & Grade Level: Information literacy & Technology, Grade 4	
Summary and Rationale	
<p>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? In this unit, students will learn how to uphold standards of academic integrity while researching online, how to adopt standards of digital etiquette when engaging in electronic exchanges of information (e.g., emailing, texting, instant messaging, social networking), 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, interpreting, citing, authoring, posting, and sharing online information. Students will also learn how to navigate the vast landscape of online information, and be encouraged to productively delve into the deliberate process of intellectual curiosity and discovery that truly is “research”? In order for students to take advantage of all the web has to offer (breadth and depth of information, engaging multimedia formats, opportunities to become fully self-directed learners), they must understand and apply specific skills in the area of search literacy, habits necessary for deep and original research. In this unit, students will learn and explore methods for efficiently and effectively planning their research, locating appropriate resources, and gathering information that is current, credible, relevant, reliable, and valid.</p>	
Recommended Pacing	
7 days	
New Jersey Student Learning Standards for	
Standard: Standard 8.1 Computer Science	
CPI #	Cumulative Progress Indicator (CPI)
8.1.5.NI.2	Describe physical and digital security measures for protecting sensitive personal information
8.1.5.DA.1	Organize and display data in order to highlight relationships or support a claim
8.1.5.DA.3	Organize and present collected data visually to highlight relationships or support claims
Standard: Standard 8.2 Design Thinking	
CPI #	Cumulative Progress Indicator (CPI)
8.2.5.ITH.1	Explain how societal needs and wants influence the development and function of a product and a system
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
New Jersey Student Learning Standards for English Language Arts Companion Standards	
Standard: Speaking and Listening Standards (Grade 4)	
CPI #	Cumulative Progress Indicator (CPI)
CCSS.ELA-	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text

Literacy.RI.4.1	
RI.4.2	Determine the main idea of a text and explain how it is supported by key details; summarize the text
RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text
RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area
RI.4.5	Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text
RI.4.6	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided
RI.4.7	Interpret Information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, timelines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears
RI.4.8	Explain how an author uses reasons and evidence to support particular points in a text
RI.4.9	Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably
RI.4.10	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range
CCSS.ELA-Literacy.W.4.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic
W.4.3d	Use concrete words and phrases and sensory details to convey experiences and events precisely
W.4.7	Conduct short research projects that build knowledge through investigation of different aspects of a topic
W.4.8	Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources
W.4.9	Draw evidence from literary or informational texts to support analysis, reflection, and research
CCSS.ELA-Literacy.SL.4.1a	Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion
SL.4.1c	Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others
SL.4.2	Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally
SL.4.3	Identify the reasons and evidence a speaker provides to support particular points
ISTE Standards for Students	
Empowered Learner	
CPI #	Cumulative Progress Indicator (CPI)
1c	Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways
Digital Citizen	
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

2c	Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property
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
Knowledge Constructor	
3a	Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits
3d	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions
Creative Communicator	
6b	Students create original works or responsibly repurpose or remix digital resources into new creations
Global Collaborator	
7a	Students use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning
7b	Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints
Interdisciplinary Standards Science	
Instructional Focus	
Unit Enduring Understandings	
<ul style="list-style-type: none"> • The use of technology and digital tools requires knowledge and appropriate use of operations and related applications. • Digital tools and environments support the learning process and foster collaboration in solving local or global issues and problems. • Technological advancements create societal concerns regarding the practice of safe, legal, and ethical behaviors. • 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. • Brainstorming activities enhance creative and innovative thinking in individual and group goal setting and problem solving. • Effective use of digital tools assists in gathering and managing information. • Information accessed through the use of digital tools assists in generating solutions and making decisions. • The ability to recognize a problem and apply critical thinking and problem-solving skills to solve that problem is a lifelong skill that develops over time. • Collaboration and teamwork enable individuals or groups to achieve common goals with greater efficiency. • Effective communication skills convey intended meaning to others and assist in preventing misunderstandings. • Communication with people from different cultural backgrounds is enhanced by the understanding of different cultural perspectives. • Digital media are 21st-century tools used for local and global communication. • There are ethical and unethical uses of communication and media. 	

- The nature of the 21st-century workplace has shifted, demanding greater individual accountability, productivity, and collaboration.
- Ethical behaviors support human rights and dignity in all aspects of life.
- The identification of key ideas and details is essential in the interpretation of text.
- Collaboration with diverse partners fosters the development of one's own comprehension and development of ideas.
- Research builds knowledge.
- Strong comprehension and collaboration skills benefit search literacy.

Unit Essential Questions

- What does it mean to own intellectual property?
- How is plagiarism a form of dishonesty?
- How can one use, borrow, copy, or build upon another's ideas without violating standards of academic integrity?
- 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?
- How is plagiarism a form of dishonesty?
- How can one use, borrow, copy, or build upon another's ideas without violating standards of academic integrity?
- 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 is research?
- With so much information now available at our fingertips (via digital devices such as smartphones, iPads, tablet computers, etc.), has research become easier or more difficult?
- What are the pros and cons of having seemingly endless streams of information readily available through digital tools?
- Where do research questions originate?
- How can one craft a search that leads to high-quality, current, credible, relevant, reliable, and valid results?
- How do search engines, such as Google, find information in response to search terms typed in a text box?
- Why is it important to evaluate the source and validity of information found on a website?
- What are the differences between quoting, paraphrasing, and summarizing?
- How does one create a list of citations for an assignment?

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: Preparing Content for Varying Audiences

Common Assessment 2: Digital Research

Competencies for 21st Century Learners

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

Resources

Core Text:

<https://www.missingkids.org/netsmartz/videos> Bad Netiquette

<https://www.brainpop.com/technology/digitalcitizenship/digitalnetiquette/> Digital etiquette

<https://www.digitalpassport.org/> Common Sense Digital Passport

<http://www.schrockguide.net/intellectual-property.html> Kathy Schrock guide to everything

<http://cyberbullying.us/category/educators/> Cyberbullying Guide

<http://www.google.com/insidesearch/searcheducation/> Google Search Lessons

<http://www.google.com/insidesearch/searcheducation/lessons.html> Google Search Lessons

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

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

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

Unit 3: Computer Programming, Design Thinking, and Engineering	
Content Area: Information Literacy & Technology	
Course & Grade Level: Information Literacy & Technology, Grade 4	
Summary and Rationale	
<p>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. Students will ask questions, define problems, interpret criteria, identify constraints, generate programming code to solve problems, test programs, compare results, and adjust variables to optimize design solutions. 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. 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. 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. Through computer programming, design thinking, and engineering students will draw on all of the STEAM fields and apply them to solve problems and to create innovative devices, structures, and software applications.</p>	
Recommended Pacing	
24 days	
New Jersey Student Learning Standards for	
Standard: Standard 8.1 Computer Science	
CPI #	Cumulative Progress Indicator (CPI)
8.1.5.CS.2	Model how computer software and hardware work together as a system to accomplish tasks
8.1.5.CS.3	Identify potential solutions for simple hardware and software problems using common troubleshooting strategies
8.1.5.AP.1	Compare and refine multiple algorithms for the same task and determine which is the most appropriate
8.1.5.AP.2	Create programs that use clearly named variables to store and modify data
8.1.5.AP.3	Create programs that include sequences, events, loops, and conditionals
8.1.5.AP.4	Break down problems into smaller, manageable sub-problems to facilitate program development
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
8.1.5.AP.6	Develop programs using an iterative process, implement the program design, and test the program to ensure it works as intended
Standard: Standard 8.2 Design Thinking	

CPI #	Cumulative Progress Indicator (CPI)
8.2.5.ED.1	Explain the functions of a system and its subsystems
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
8.2.5.ED.4	Explain factors that influence the development and function of products and systems
8.2.5.ED.5	Describe how specifications and limitations impact the engineering design process
8.2.5.ITH.2	Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have
ISTE Standards for Students	
Empowered Learner	
CPI #	Cumulative Progress Indicator (CPI)
1a	Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes
1b	Students build networks and customize their learning environments in ways that support the learning process
1c	Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways
Innovative Designer	
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
Computational Thinker	
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
Creative Communicator	
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
Interdisciplinary Standards	
Next Generation Science Standards	
Engineering, Technology, and Applications of Science	
CPI #	Cumulative Progress Indicator (CPI)
3-5-ETS1-1	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-ETS1-2	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
3-5-ETS1-3	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved
Instructional Focus	

Unit Enduring Understandings

- Special machines called robots can be programmed to do different things.
- Engineers work together using shared norms and practices to accomplish goals.
- Procedural Programming is the basic mechanism that computer programs use to execute a program
- Selection Statements allow a program to make decisions while the program is executing
- Structures allow a program to repeat a set of actions for a constant or variable number of times
- System control and robotics is the future of manufacturing in business and industry.
- System control technology is used in building control systems at school, work, and home applications.
- Computer hardware and software can be used to control a variety of devices to complete specific tasks and to do work.
- Coding is used in everyday life to help devices make the world easier.
- 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.
- Brainstorming activities enhance creative and innovative thinking in individual and group goal setting and problem solving.
- The Engineering Design Process is a method that is used to solve technological challenges to change and improve products for the way we live.

Unit Essential Questions

- How can you make your ProBot move in different ways?
- Can you make your ProBot complete mathematical functions?
- Can you make your ProBot repeat a set of commands?
- Can you make your ProBot follow a path?
- Can you make your ProBot make different letters?
- Can you estimate (or guess) how far apart 2 objects are?
- Can you turn the lights on and off on your ProBot?
- Can you make your ProBot make sound?
- Can you make your ProBot move at certain angles?
- Why do software engineers develop computer programs to control technology systems?
- How has system control technology and robotics systems changed the way we manufacture products?
- How can system control be used in school, work, and home applications?
- Why do engineers and designers strive to improve products used in our daily lives?
- Why do we use the engineering design process to solve design challenges?
- How can the engineering design process benefit us in solving problems in our daily lives?
- What is coding and what can you use coding to create?
- What is Scratch and how can it be used to solve real world problems?

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

- Students will develop vocabulary and communication skills to explain how the technological system works.
- Students will learn how to put a pen inside the *Pro-Bot* and draw some simple lines onto a sheet of paper using it.
- Students will make the pro-bot stop and then restart it's journey after a moment.
- Students will move the *Pro-Bot* around a floor mat to different destinations, learning how to enter numerical commands (e.g. forward 3 instead of 3 lots of the forward command).
- Students will learn how to program the *Pro-Bot* to draw rectangular shapes with it (hopefully spotting a repeating pattern in the commands they enter).
- Students will draw shapes and patterns using the repeat command in their programs.

- Students will understand, compare, and describe how the rotation sensors can be programmed to make the robot travel specific distances affect the speed of movement.
- Students will program the Pro-Bot to perform special commands (lights on/off and various sounds).
- Students will create a program to control the robot through a designated course.
- Students will complete an open-ended design challenge using computer software and software programming.
- Students will develop computer programs to control robotic devices to complete a desired outcome.
- Students will test, troubleshoot, and modify computer programs.
- Students will modify computer programs and mechanical systems to complete a design challenge

Evidence of Learning

Assessment

Common Assessment 1: Digital Design

Common Assessment 2: Understanding Computer Science Principles

Common Assessment 2: Programing Robotic Devices

Competencies for 21st Century Learners

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

Resources

Core Text:

<http://movemyrobot.blogspot.com/p/lesson-plan-hour-1-introduce-pro-bot.html> ProBot Lesson Plans

https://www.tts-international.com/on/demandware.static/-/Sites-TTSGroupE-commerceMaster/default/dwdbe3a621/images/document/3529%20-%20Pro-Bot%20Computing%20Guide_a.pdf ProBot Teacher Guide

<https://hourofcode.com/googlelogo> Scratch Google Logo

<https://scratch.mit.edu/projects/11283405/> Scratch ProBot

http://www.tts-group.co.uk/_RMVirtual/Media/Downloads/ITS1PCRD.pdf (Shape Property Cards)

<http://www.earlylearninghq.org.uk/themes/vehicles/programmable-robot-racing-track-mat/> (race track mat)

<http://www.communication4all.co.uk/http/beebot.htm> Beebot lesson

<https://www.youtube.com/watch?v=mBHJtWbsiaA> Design Thinking Triangles

<https://www.youtube.com/watch?v=kfBa2AdjRB4> Design Thinking

https://www.youtube.com/watch?v=YB_QhFFPpLs Design Thinking

Unit 4: Digital Assessment Integration	
Content Area: Information Literacy & Technology	
Course & Grade Level: Information Literacy & Technology, Grade 4	
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.	
Recommended Pacing	
1 day	
New Jersey Student Learning Standards for	
Standard: 8.1 Computer Science	
CPI #	Cumulative Progress Indicator (CPI)
8.1.5.CS.3	Identify potential solutions for simple hardware and software problems using common troubleshooting strategies
8.1.5.DA.1	Organize and display data in order to highlight relationships or support a claim
8.1.5.DA.5	Propose cause and effect relationships, predict outcomes, or communicate ideas using data
ISTE Standards for Students	
Creative Communicator	
CPI #	Cumulative Progress Indicator (CPI)
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
Interdisciplinary Standards	
Instructional Focus	
Unit Enduring Understandings	
<ul style="list-style-type: none"> Digital environments are specialized to meet certain needs (e.g., to inform, to persuade, to entertain, to assess, etc.). In order for one to interact appropriately within a digital environment, one must be adept at manipulating digital tools particular to that environment. Standardized testing is one form of assessment that assists teachers with refining their programs and improving student learning. Using digital tools to create online assessments will help students gain confidence while completing digital evaluations. 	
Unit Essential Questions	
<ul style="list-style-type: none"> 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? What are the advantages and disadvantages of an online assessment environment? How can I best prepare myself to perform well on an online assessment? 	

- How do I transition between sections, focus on discrete instructions, employ the proper tools, and successfully respond to various types of assessment items?
- How can we create online assessment tools similar to standardized tests to help us better understand the functions of digital tools?

Objectives

Students will know and be able to:

- Familiarize themselves with online assessment environments.
- Respond to various types of online assessment items.
- Recognize the disadvantages while capitalizing on the advantages provided by an online assessment environment.
- Experience, sample, and practice with authentic online assessment items.
- Transition between sections, focus on discrete instructions, employ the proper tools, and successfully respond to various types of assessment items.
- 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 slide shows 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.).
- Seek assistance for technical difficulties.

Evidence of Learning

Assessment

Common Assessment 1: Understanding Online Assessments

Competencies for 21st Century Learners

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

Resources

Core Text:

<https://nj.mypearsonsupport.com/tutorial/> TestNav

<http://www.parcconline.org/practice-tests> Test Resources

<http://www.teachhub.com/how-prepare-students-parcc-tests> Test Resources

Unit 5: Digital Navigation	
Content Area: Information Literacy & Technology	
Course & Grade Level: Information Literacy & Technology, Grade 4	
Summary and Rationale	
<p>In this digital age, it is essential to prepare students for education in the 21st century. This means that they need a full skill set of collaborative digital tools, as well as knowledge of formatting digital files. There are many digital tools that Google offers that allow students to create, share, and collaborate on documents, presentations, spreadsheets and calendars. Google Drive will allow students to save their digital creations in the cloud so that they may access them in any location. In this unit students will be introduced to Google documents, spreadsheets, calendars, presentations, and email. Students will learn how to format documents, as well as add graphics, links, and videos to their work. The students will get to explore the collaborative abilities of Google digital tools, where they will work on a file, presentation, or spreadsheet together, at the same time, on their own computers. Students will also learn how to Screencast their thoughts and ideas and share them with the world. They will be exposed to different tools used to share such as QR codes and Screencastify. Google Calendar will allow students to keep track of due dates and school events. At the conclusion of this unit, students will have ample knowledge of digital tools and be comfortable navigating 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	
5 days	
New Jersey Student Learning Standards for	
Standard: 8.1 Computer Science	
CPI #	Cumulative Progress Indicator (CPI)
8.1.5.CS.1	Model how computing devices connect to other components to form a system.
8.1.5.CS.2	Model how computer software and hardware work together as a system to accomplish tasks
8.1.5.CS.3	Identify potential solutions for simple hardware and software problems using common troubleshooting strategies
8.1.5.IC.1	Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes.
8.1.5.IC.2	Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users.
Standard: 8.2 Design Thinking	
CPI #	Cumulative Progress Indicator (CPI)
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
8.2.5.ITH.2	Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have
ISTE Standards for Students	
Empowered Learner	
CPI #	Cumulative Progress Indicator (CPI)
1a	Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.

1c	Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways.
Digital Citizen	
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
Creative Communicator	
6b	Students create original works or responsibly repurpose or remix digital resources into new creations
6d	Students publish or present content that customizes the message and medium for their intended audiences
Interdisciplinary Standards	
Instructional Focus	
Unit Enduring Understandings	
<ul style="list-style-type: none"> ● Google Drive is a place where we can store our files in cloud storage and share them with others. ● Google Email allows us to communicate with our teachers and peers by sending emails to their school accounts. ● Google Drive allows us to create new files such as documents, presentations, or spreadsheets. ● Google Drive allows us many capabilities, such as adding pictures, videos, and URLs. ● With a Google document we can communicate with our peers and teachers via the chat and comment features. ● We can use Google Calendar to store important dates and we can share our calendar with others. ● We can format documents to fit our design needs by changing different features of the text. ● Google Drive enables us to effectively collaborate with our peers and teachers when working on school projects. ● Google Sheets allows users to create and edit files online while collaborating with other users in real-time. ● Screencasting can be an effective way to capture actions taking place on a computer display with audio narration. ● QR codes are quick response data that can be linked to a website containing a student's project. 	
Unit Essential Questions	
<ul style="list-style-type: none"> ● What is a URL? <ul style="list-style-type: none"> ○ What is the anatomy of a URL? ○ How do I find the domain of a website? ● What is Google Drive? <ul style="list-style-type: none"> ○ How does it work? ○ How do you create folders? ○ How do you upload a document to the drive to a certain folder? ○ How do you share a document? ○ How do you collaborate on one document with multiple people? ● What is Gmail? <ul style="list-style-type: none"> ○ How do I create a new email? 	

- How do I select recipients to send an email to?
- How do I format the text in an email?
- How do I check and read the email I have received in my Gmail account?
- What is Google Slides?
 - How do I select a theme?
 - How do I title my document?
 - How do I embed video clips and photos?
 - How do I include active links?
 - How do I share the presentation?
 - How do I share my presentation document with others so that we may collaborate on it?
- What is Google Calendar?
 - How do I add a calendar event?
 - How do I set an event to recur on a specific schedule?
 - How do I manage the options in a calendar event?
 - How do I share my calendar with others?
- What is Google Docs?
 - How do I change the font?
 - How do I change the font size?
 - How do I change the text color and the text background color?
 - How do I bold, italicize or underline text?
 - How do I insert a link into a document?
 - How do I add bullets?
 - How do I align text?
 - How do I share my document with others so that we may collaborate on it?
- What is Google Sheets?
 - What are cells?
 - How do I enter text into cells?
 - How do I format cells?
 - How do I merge cells?
 - How do I add color to cells?
 - What is the difference between rows and columns?
 - How do I format all rows and cells at one time?
 - How do I manage multiple pages within one notebook?
- What is Screencasting and how can it be used to share your ideas?
- How do QR codes make it easier to access your projects?

Objectives

Students will know and be able to:

- Input data and text into a document
- Use a word processing program to format text and add graphics.
- Create a Google presentation with graphics and media and present it to peers.
- Create a spreadsheet, input data, and be able to interpret the information.
- Explain how digital tools help us.
- Engage in online communication with peers and students.
- Evaluate digital resources that can assist us.

- Collaboratively complete a task with peers using a digital platform.
- Save and access files in their Google Drive.
- Manage a Google Calendar.
- Communicate via digital tools (e.g., comment, chat, gmail).
- Interpret visual online information and demonstrate understanding.

Evidence of Learning

Assessment

Common Assessment 1: Digital Collaboration and Sharing

Competencies for 21st Century Learners

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