

# Unit 1

## Technology Curriculum PreK-3rd

### 2018

Content Area:	<b>Technology</b>	Grade(s)	<b>Pre-K -3rd</b>
<b>Unit Overview:</b>	1 <sup>st</sup> trimester		
<b>2018 New Jersey Student Learning Standards Technology</b>			
<p><b>8.1 Educational Technology:</b> All students will use digital tools to access, manage, evaluate, and synthesize. Information in order to solve problems individually and collaborate and to create and communicate knowledge.</p> <p><b>A. Technology Operations and Concepts:</b> Students demonstrate a sound understanding of technology concepts, systems and operations.</p> <p><b>D. Digital Citizenship:</b> Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.</p>			
<p><b>8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:</b> All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.</p> <p><b>A. The Nature of Technology:</b> Creativity and Innovation Technology systems impact every aspect of the world in which we live.</p>			
<b>Standard(s) 8.1 Educational Technology</b>			
<ul style="list-style-type: none"> <li>● <b>8.1.P.A.1</b> Use an input device to select an item and navigate the screen</li> <li>● <b>8.1.P.A.2</b> Navigate the basic functions of a browser</li> <li>● <b>8.1.P.A.3</b> Use digital devices to create stories with pictures, numbers, letters and words</li> <li>● <b>8.1.P.A.4</b> Use basic technology terms in the proper context in conversation with peers and teachers (e.g., camera, tablet, Internet, mouse, keyboard, and printer).</li> <li>● <b>8.1.P.A.5</b> Demonstrate the ability to access and use resources on a computing device.</li> <li>● <b>8.1.2.A.1</b> Identify the basic features of a digital device and explain its purpose.</li> <li>● <b>8.1.2.A.2</b> Create a document using a word processing application.</li> <li>● <b>8.1.2.A.3</b> Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of using each.</li> <li>● <b>8.1.2.A.4</b> Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).</li> <li>● <b>8.1.2.A.5</b> Enter information into a spreadsheet and sort the information.</li> <li>● <b>8.1.2.A.6</b> Identify the structure and components of a database.</li> <li>● <b>8.1.2.A.7</b> Enter information into a database or spreadsheet and filter the information.</li> <li>● <b>8.1.2.D.1</b> Develop an understanding of ownership of print and non-print information.</li> </ul>			
<b>8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:</b>			
<ul style="list-style-type: none"> <li>○ <b>8.2.2.A.1</b> Define products produced as a result of technology or of nature.</li> <li>○ <b>8.2.2.A.2</b> Describe how designed products and systems are useful at school, home and work.</li> <li>○ <b>8.2.2.A.3</b> Identify a system and the components that work together to accomplish its purpose.</li> <li>○ <b>8.2.2.A.4</b> Choose a product to make and plan the tools and materials needed.</li> <li>○ <b>8.2.2.A.5</b> Collaborate to design a solution to a problem affecting the community.</li> </ul>			

Essential Question(s)	Enduring Understandings
<ul style="list-style-type: none"> <li>● What are the parts of the computer and how do they work?</li> <li>● How do I choose which technological tools to use and when it is appropriate to use them?</li> <li>● How can I transfer what I know to new technological situations/experiences?</li> <li>● In a world of constant change, what skills should we learn?</li> <li>● What are the roles of each computer hardware component?</li> <li>● How is being a citizen of the internet the same/different than my home town?</li> <li>● What are the implications of digital citizenship in today's world?</li> </ul>	<ul style="list-style-type: none"> <li>● Effective use of Internet sources and information for everyday tasks.</li> <li>● Effective use of technology competencies to reach a global audience.</li> <li>● Taking responsible measures when handling technology equipment and when using software and applications.</li> <li>● Being safe online is essential.</li> <li>● Digital tools help create and share ideas.</li> <li>● Lifelong learners use technology effectively.</li> </ul>

Interdisciplinary Connections		
Student Learning Standards Literacy	Student Learning Standards Math	Career Ready Practices
SLS.ELA-Literacy.CCRA.R.7	SLS.MATH.PRACTICE.MP1	CRP1
SLS.ELA-Literacy.CCRA.W.6	SLS.MATH.PRACTICE.MP2	CRP4
SLS.ELA-Literacy.RI.1.5	SLS.MATH.PRACTICE.MP3	CRP6
SLS.ELA-Literacy.RI.1.10	SLS.MATH.PRACTICE.MP5	CRP8
SLS.ELA-Literacy.RF.1.4.C	SLS.MATH.PRACTICE.MP6	CRP11
SLS.ELA-Literacy.W.1.6	SLS.MATH.PRACTICE.MP7	
SLS.ELA-Literacy.SL.1.1		
SLS.ELA-Literacy.SL.1.1c		
SLS.ELA-Literacy.SL.1.2		

Learning Plan		Suggested Activities			
Suggested Time Frame	Topic	Skills	Computational Thinking <small>(CT) is a way of solving problems, designing systems, and understanding human behavior by drawing on the concepts fundamental to computer science.</small>	Core Instructional Materials	Suggested Formative/Summative Classroom Assessments
Week 1	Introduction: Identify the basic features of a digital device and explain its purpose.	<p>Parts of computer or technology device used in the classroom. Programs/apps Start menu Program menus Power button Desktop Operating Systems. Digital tools Shortkeys Tech rules Visiting websites</p> <p>Identify features of a computer and their uses.</p> <p>Identify input, output, and processing devices.</p>	<p>Discuss how digital learners use technology in their lives by drawing a silhouette of a 21st century digital learner on the Starboard screen. List each Item mentioned by students and examine technology goals in terms of how technology supports student's education and life goals.</p> <p>Review: Select, Drag and Double Space Windows and Controls Toolbars and Menus Data Storage Login-in Printer.</p>	<p>Digital learners will become familiar with the computer and its different parts and learn computer lab rules.</p> <p>Computer Lab Rules <a href="http://www.edudemic.com/school-computer-lab-rules/">http://www.edudemic.com/school-computer-lab-rules/</a></p> <p>Computer basics websites and posters. <a href="http://www.gcflearnfree.org/computer-basics/what-is-a-computer/1/">http://www.gcflearnfree.org/computer-basics/what-is-a-computer/1/</a></p> <p>Computer Skills <a href="http://www.e-learningforkids.org/computer-skills/">http://www.e-learningforkids.org/computer-skills/</a></p> <p>Parts of a Computer <a href="http://www.primaryresources.co.uk/ict/pdfs/parts.pdf">http://www.primaryresources.co.uk/ict/pdfs/parts.pdf</a></p>	<p>Assessments will be made through observations of students.</p> <p>Assessments will be made through using checklists.</p>
Week 2	Login-In Demonstrate developmentally appropriate navigation skills in virtual environments		Go over Log-In Instructions. Review the @ key.	<p>TechKnowledge</p> <p>Turtle Diary <a href="https://www.turtlediary.com/game/learn-keyboarding.html">https://www.turtlediary.com/game/learn-keyboarding.html</a></p>	

				*Learning: Parts of an Ipad	
<b>Week 3</b>	<p>Classroom Hardware</p> <p>Identify the basic features of a digital device and explain its purpose.</p>	<p>Use proper vocabulary. Distinguish between an operating systems and computer programs.</p> <p>Will access open and name documents in google drive.</p> <p>Identify other kinds of technology: Tablets, Cell Phone, Television, Automobile, Train, Plane, Machines, etc.</p>	<p>Explain the steps to operate the digital device used in classroom.</p> <p>The difference between iPads and Chromebooks operating systems.</p> <p>Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of using each.</p> <p>Digital learners can make a connection between their digital devices used in school and the ones they own at home.</p> <p>Additionally, digital learners can briefly discuss the procedure of recycling these devices once they go obsolete.</p>	<p>Internet, mouse websites <a href="https://kahoot.com/welcomeback/">https://kahoot.com/welcomeback/</a> Computer parts handout <a href="http://www.primaryresources.co.uk/ict/pdfs/parts.pdf">http://www.primaryresources.co.uk/ict/pdfs/parts.pdf</a> WiFi, iPads.</p> <p>BrainPop and JR: Parts of the Computer Data Storage Devices</p> <p>Recycling: <a href="http://sustainablog.org/2015/05/33-recycling-games-for-teaching-your-kids-and-yourself-about-responsible-waste-disposal/">http://sustainablog.org/2015/05/33-recycling-games-for-teaching-your-kids-and-yourself-about-responsible-waste-disposal/</a>  <a href="https://kahoot.com/welcomeback/">https://kahoot.com/welcomeback/</a>  <a href="http://www.crazy4computers.net/">http://www.crazy4computers.net/</a></p>	
<b>Week 4</b>	<p>Digital Tools in the Classroom</p> <p>Use digital tools and online resources to explore a problem or issue.</p>	<p>Distinguish between an operating systems and computer programs.</p> <p>Software vs. Online tool Compare &amp;</p>	<p>Students use digital tools to encourage learning.</p> <p>Software vs online Tool Compare-contrast Pros and cons Software and Webtools.</p>	<p>Internet Search Bar Google Drawing and Paint program, Cursor Skills <a href="http://www.abcya.com">www.abcya.com</a> <a href="#">m</a> Sites WiFi connection,</p>	

		<p>Contrast Pros and cons Software Web Tools</p> <p>Demonstrate the ability to navigate in virtual environments that are developmentally appropriate.</p>	<p>Research a topic or an item with other digital learners. For Example: A new innovated toy advertised on T.V. Digital learners need to make a connection with the digital world to learn new skills or research new information,</p>	<p>iPads Tools that require log-ins. Abcya.com Tumble Books Brain Pop Jr. Turtle.com cookie.com <a href="http://www.crazy4computers.net/">http://www.crazy4computers.net/</a></p>	
<b>Week 5</b>	<p>Tools, Toolbars, and Symbols Demonstrate developmentally appropriate navigation skills in virtual environments</p>	<p>Symbols Tools, toolbars Digital citizenship Icons Drawing program Taskbar Letter websites Log-in Care of digital devices Troubleshooting Sound and other Hardware problems.</p>	<p>Review hardware problems that arise daily when using digital devices and how to solve them.</p>	<p>Techknowledge Internet word processing keyboarding program Drawing program Cursor websites Google Doc Word Doc <a href="http://www.crazy4computers.net/">http://www.crazy4computers.net/</a> <a href="https://kahoot.com/welcomeback/">https://kahoot.com/welcomeback/</a> <a href="http://www.abcya.com">www.abcya.com</a></p>	
<b>Week 6</b>	<p>Intro to Pre-keyboarding Pre-keyboarding Shortkeys Important keys Review hand placement (home row keys)</p>	<p>keyboarding overview keyboarding short keys. Keyboarding: ABCDE FGHIJ KLMNO PQRST UVWXYZ Numbers Word Spaces Cursor, Arrow, Tab Shift and Symbols Touch Keyboarding-Discussion</p>	<p>What are some ways humans communicate using technology?</p> <p>Discuss keyboarding with students. Have they seen parents or siblings use a keyboard? What for? Why are keys not in alphabetic order? How have students used the keyboard at home or in preschool?</p>	<p>Internet, keyboard program, drawing program,</p> <p>Learning.com: Easy Tech Keyboarding Skills Lessons <a href="http://www.e-learningforkids.org/computer-skills/">http://www.e-learningforkids.org/computer-skills/</a> Google Doc/Word Doc</p>	

<p><b>Week 7</b></p>	<p>Photo Story</p>	<p>Make a list of student problems (from prior years)          Problem-solving strategies          Hardware problem          Shortkeys</p>	<p>Digital Learners can take pictures and narrate themselves asking a question about a hardware problem. Instructore must reinforce the importance of students solving their own problems. Why is this Essential? Who solves their problems now? Are they always around? Finally, students will create a photo story solution to one of the computer problems.</p>	<p>Digital camera          Video camera          Audio          Downloading          Instructors can find detailed instructions for creating a Photo Story using google slides and/or google drawings using a picture or a drawing they will label, make a diagram or write a story about solving the problem.</p>	
<p><b>Week 8</b></p>	<p>Explore The Wonderful World Wide Web Safely.</p>	<p>Internet safety          Advertising Tabs          Browsing          Digital Neighborhood          Online safety          Internet Browser Parts</p>	<p>What do students know about the internet? What are the implications of digital citizenship in today's world? Discuss browsers (like Chrome and Firefox). Compare the internet toolbar to other toolbars students use (i.e., the toolbar for drawing program or keyboarding tool).</p>	<p>Multimedia  <a href="https://www.commonsensemedia.org/">https://www.commonsensemedia.org/</a>  <a href="http://cybersmartcurriculum.org/lessonsbygrade">http://cybersmartcurriculum.org/lessonsbygrade</a>  <a href="https://kahoot.com/welcomeback/">https://kahoot.com/welcomeback/</a>  <a href="https://www.netsmartkids.org/">https://www.netsmartkids.org/</a>          Internet Safety Pledge  <a href="https://elementarylabinstructors.wikispaces.com/file/view/InternetSafety%20%28Lesson%201_2%29.pdf/131682449/InternetSafety%20%28Lesson%201_2%29.pdf">https://elementarylabinstructors.wikispaces.com/file/view/InternetSafety%20%28Lesson%201_2%29.pdf/131682449/InternetSafety%20%28Lesson%201_2%29.pdf</a></p>	
<p><b>Week 9          Week 10</b></p>	<p>Digital Citizenship</p>	<p>Shortcut          Digital citizenship          Tabbed browsing          Pre-keyboarding</p>	<p>Online Communication:          Safe Site Strategies          Open Communication</p>	<p>Internet Safety Packet  <a href="https://elementarylabinstructors.wikispaces.com/file/view/WebWiseKids.com%20Internet%20Safety%20Packet.pdf/205653922/WebWiseKids.com%20Internet%20Safety%20Packet.pdf">https://elementarylabinstructors.wikispaces.com/file/view/WebWiseKids.com%20Internet%20Safety%20Packet.pdf/205653922/WebWiseKids.com%20Internet%20Safety%20Packet.pdf</a></p>	

		<p>posture/position</p> <p>Digital citizenship</p> <p>Internet safety</p> <p>Using the internet</p> <p>Cyberbullying</p> <p>Passwords</p> <p>Digital rights and responsibilities</p>	<p>Netiquette and Cyberbullying Discussion</p> <p>Surf Swell Island Online</p> <p>Communication-BrainPop JR:</p> <p>Internet Safety CyberBullying</p> <p>What are the digital rights and responsibilities of a P-2nd digital learner?</p> <p>Cyberbullying Digital rights and responsibilities</p> <p>Internet safety Passwords.</p> <p>Have students develop their own scenarios related to online safety and role-play them for the class. After each scenario, the class discusses whether the students in the scenario practiced being safe online. Have students create posters to hang up.</p>	<p>Internet safety links</p> <p><a href="http://www.netsmartkids.org/">http://www.netsmartkids.org/</a></p> <p><a href="http://www.carnegicyberacademy.com/">http://www.carnegicyberacademy.com/</a></p> <p><a href="http://digizen.org/">http://digizen.org/</a></p> <p>Media Curriculum.</p> <p><a href="http://platform.learning.com/content/Partner/COM/Journals/Are_These_Students_Practicing_Online_Safety.pdf">http://platform.learning.com/content/Partner/COM/Journals/Are_These_Students_Practicing_Online_Safety.pdf</a></p>	
<b>Week 11</b>	Spreadsheets	<p>Graphic organizers</p> <p>Brainstorming</p> <p>Mindmapping</p>	<p>Introduce concept of ‘brainstorming, also called ‘mindmapping’ a collaborative visual Approach to thinking through and presenting ideas.</p> <p>A gift list or a todo list can be created on a Excel spreadsheet.</p>	<p>Intro to Spreadsheets</p> <p>Excel</p> <p>Google Sheets</p> <p>Graphic organizer sites:</p> <p><a href="https://ditchthattextbook.com/">https://ditchthattextbook.com/</a></p>	

			Digital learners need to make the connection that they can use spreadsheets to organize their lives.	
<b>Week 12</b>	Hour of Code	<p>Coding programming</p> <p>Problem solving</p> <p>Using code to build programs and games</p> <p>Computational Creations.</p>	<p>Coding is also a great tie-in to Student Learning Standards Math Standards.</p> <p>Anytime you show students how to use math skills outside of math, it surprises them. They don't expect a discussion on problem solving or modeling to come from math.</p>	<p>Coding websites</p> <p><a href="http://www.hongkiat.com/blog/sites-to-learn-coding-online/">http://www.hongkiat.com/blog/sites-to-learn-coding-online/</a></p> <p><a href="http://www.code.org">www.code.org</a></p> <p><a href="http://www.kodable.com">www.kodable.com</a></p> <p><a href="https://scratch.mit.edu/">https://scratch.mit.edu/</a></p> <p><a href="http://www.tynker.com">www.tynker.com</a></p> <p>Coding mice</p> <p>Daisy the Dinosaur App (Ipad).</p>

### Supportive Strategies

**Google VR can be used to enhance any of the above lessons.**

#### 1. Special Education

- Employ assistive technology as needed (For example, use of Dyslexic font, high contrast or screen magnification on Chromebook, or spoken text features).
- Graphic Organizers.
- Modifications on IEP.
- Provide written and oral directions, utilizing visuals and exemplars. (For example, teacher models on StarBoard how to login to Code.org and provides Step-by-Step instruction handout to student).
- Reduction in workload.
- Repetition and Reinforcement of classroom material.
- Strategic Grouping for all group work.
- Extra time for assigned tasks.
- Extra response time.
- Repeat, clarify or reword directions.
- Emphasize multi-sensory learning.

#### 2. ESL

- Employ assistive technology as needed (For example, online translation or Language text settings on technology device) .
- For collaborative assignments, appropriate roles will be assigned. (For example, time-keeper, activity starter) .
- Make content culturally relevant.
- Partner English Learners with Strong English Speakers.
  - Provide written and oral directions for all lessons, utilizing visuals and exemplars.
- Repeat classroom procedure and routines as much as possible to reinforce language learning.
- Visual Aids.

#### 3. Student at risk of failure



- Employ assistive technology as needed (For example, use of Dyslexic font, high contrast or screen magnification on devices, or spoken text features).
- Flexible acceptance of missing/lost/incomplete assignment.
- Strategic Grouping for all group work

#### 4. Gifted and Talented

Higher level learners will be provided with more intellectually demanding learning activities. (For example, students who complete lessons on Code.org can continue to the next levels at their own pace).

- Higher Order Questioning.
- Utilize different reading levels appropriate for students.

#### DOE Resources and Sample Activities 8.1.A, 8.2.A (Assessment)

Using a word processing application create a “Wellness Class” document that is an informative text. Students summarize facts and definitions from the article about strategies to prevent the spread of common cold or flu. (See lesson link for article.) Revise, edit and share the final version with students and/or class guests, providing a reference and reinforcing good wellness practices.

In groups, students will attempt to build the tallest tower out of marshmallows and uncooked spaghetti (See Marshmallow Challenge lesson link below). Students will routinely write descriptions of their process and progress. They will first draw a sketch of their tower, illustrating how the shape of the objects will help their tower to be the tallest. After the tower is built, students will reflect on the experience and both write about and discuss how the individual pieces worked together in the construction of the tower.

#### Unit Vocabulary

Toolbar	Text box	Windows	Online help
Start menu	Button	Dropdown	Toolbar
Power button	Resize	Menu	Icon
Desktop	Restore	Checkbox	Properties
Operating Systems	Printer	Output device	Menu
Highlight	Processor	Speaker	Cursor
Mouse	Illustrating	Maximize	Exit
Drag and drop	Computer	Dialog box	Name
Double click	Keyboard	Minimize	Print
Select	Code	Hard drive	File format
Pointer	Disk	Desktop	Select software
Recycle bin	Data storage device	File structure	Software
Delete	Flash drive	Scroll bar	Save
Folder	write	CD	Close
Trash	Optical drive	Function	Video
Drive	USB	Input device	Technology
DVD	Programming	Keyboard	Audio
Digital Citizenship	Delete	Monitor	Symbol
	Virus		
	Cyberbully		

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