



## West Windsor-Plainsboro Regional School District

Unit 1: Intro to 7th Grade Computer Applications	
<b>Content Area: Technology</b>	
<b>Course &amp; Grade Level: 7th Grade Computer Applications</b>	
Summary and Rationale	
<ul style="list-style-type: none"> <li>Students will understand the progression of the 7th grade computer applications class by way of general introduction to the course, computer lab procedures, and curriculum related software</li> <li>Students will understand the use of technology tools to broaden and reinforce learning, increase productivity, and foster creativity not only in the computer applications class but across all content areas</li> <li>Students will participate in an inclusive and diverse computing culture, learning strategies for incorporating perspectives from people of different genders, ethnicities, and abilities. An inclusive computing environment facilitates productive collaboration in the computer classroom.</li> </ul>	
Recommended Pacing	
4 days	
New Jersey Student Learning Standards for Career Readiness, Life Literacies and Key Skills	
<b>Standard: Standards for Career Readiness, Life Literacies and Key Skills</b>	
CPI #	Cumulative Progress Indicator (CPI)
9.4.8.TL.3	Select appropriate tools to organize and present information digitally
9.4.8.GCA.1	Model how to navigate cultural differences with sensitivity and respect
9.4.8.GCA.2	Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal.
ISTE 1.7a	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.
Instructional Focus	
Unit Enduring Understandings	
<ul style="list-style-type: none"> <li>Building intrapersonal/interpersonal and collaborative skills</li> <li>Importance of relationships in getting to know your peers and your teacher and class expectations</li> <li>Understanding how to use technology tools to broaden and reinforce learning, increase productivity, and foster creativity</li> </ul>	
Unit Essential Questions	
<ul style="list-style-type: none"> <li>How does equitable collaboration lead to increased productivity?</li> <li>How do students communicate their interests, skills, and goals?</li> <li>Why is it important to understand and use technology tools appropriately?</li> </ul>	
Objectives	
<b>Students will know:</b> <ul style="list-style-type: none"> <li>How to use and choose technology to gather and communicate information in an effective, efficient, and appropriate manner</li> </ul> <b>Students will be able to:</b> <ul style="list-style-type: none"> <li>Become collaborative and effective communicators</li> <li>Understand and implement classroom and school rules, procedures, and expectations</li> <li>Use new and familiar technology tools to broaden and reinforce learning, increase productivity, and foster creativity</li> </ul>	
Evidence of Learning	
Assessment	
Students will collaboratively create a digital product as means of introduction using available technology.	
Resources	

kahoot.com  
 wordart.com  
 flipgrid.com  
 Google Slide  
 Google Drawing

Unit 2: 3D Design	
<b>Content Area: Technology</b>	
<b>Course &amp; Grade Level: 7th Grade Computer Applications</b>	
Summary and Rationale	
<ul style="list-style-type: none"> <li>Using the basic elements of Computer Aided Design (CAD) to assist in the modeling and fabrication process</li> <li>Extend beyond limitations of 2D sketches to 3D modeling and design using three axes</li> <li>Using proportional reasoning to scale a model</li> <li>Enable collaboration and creative expression in the design process</li> </ul>	
Recommended Pacing	
15 days	
New Jersey Student Learning Standards for Computer Science and Design Thinking	
<b>Standard: Standards for Computer Science and Design Thinking</b>	
CPI #	Cumulative Progress Indicator (CPI)
8.2.8.ED.3	Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch).
ISTE 1.4b	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
ISTE 1.4c	Students develop, test and refine prototypes as part of a cyclical design process.
Instructional Focus	
<b>Unit Enduring Understandings</b>	
<ul style="list-style-type: none"> <li>Engineering design is a systematic, creative, and iterative process.</li> <li>The process includes generating ideas, choosing the best solution, and making, testing, and redesigning models or prototypes.</li> <li>Engineering design requirements and specifications involve making trade-offs between competing requirements and desired design features.</li> </ul>	
<b>Unit Essential Questions</b>	
<ul style="list-style-type: none"> <li>How can a 2D sketch be extended to a 3D model?</li> <li>What are the tools required to navigate a 3D environment?</li> <li>How do scale, rotation, and multiple axes play into designing a purposeful 3D model?</li> </ul>	
<b>Objectives</b>	
<b>Students will know:</b> <ul style="list-style-type: none"> <li>Students will know how to extend a 2D sketch into a 3D model.</li> <li>Students will identify the purpose of necessary tools to navigate a 3D environment</li> </ul> <b>Students will be able to:</b> <ul style="list-style-type: none"> <li>Students will be able to apply the basic elements of Computer Aided Design (CAD) as they digitally mold shapes into a variety of purposeful 3D creations</li> </ul>	
Evidence of Learning	
<b>Assessment</b>	
Students will create a variety of 3D designs and models as they navigate modeling software	

Resources
Sketch Up for Schools Tinkercad BrainPop

Unit 3: Multimedia Design	
<b>Content Area: Technology</b>	
<b>Course &amp; Grade Level: 7th Grade Computer Applications</b>	
Summary and Rationale	
<ul style="list-style-type: none"> <li>Using multimedia creatively to convey a message.</li> <li>Combining text, images, sound, animation, video to communicate a specific message.</li> <li>Using graphics to enhance digital products.</li> <li>Using digital tools for photo editing, illustrating, video editing, sound editing, and animation.</li> </ul>	
Recommended Pacing	
21 days	
New Jersey Student Learning Standards for Career Readiness, Life Literacies and Key Skills	
<b>Standard: Standards for Career Readiness, Life Literacies and Key Skills</b>	
CPI #	Cumulative Progress Indicator (CPI)
9.4.8.IML.3	Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.
ISTE 1.6b	Students create original works or responsibly repurpose or remix digital resources into new creations.
ISTE 1.6c	Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
ISTE 1.6d	Students publish or present content that customizes the message and medium for their intended audiences.
Instructional Focus	
<b>Unit Enduring Understandings</b>	
<ul style="list-style-type: none"> <li>Digital tools are appropriate for creating and editing text, visualizations, graphic images, sound, video, and animation.</li> <li>Multimedia allows for broad concepts and data to be more effectively communicated.</li> <li>Multimedia products can be original works or remixed into unique creations.</li> </ul>	
<b>Unit Essential Questions</b>	
<ul style="list-style-type: none"> <li>How can a message be effectively communicated via multimedia?</li> <li>What tools are available to create or manipulate images, text, sound, video, and animation?</li> <li>How can new designs be created by remixing existing digital products?</li> </ul>	
<b>Objectives</b>	
<b>Students will know:</b> <ul style="list-style-type: none"> <li>Students will know how to use multimedia to communicate an idea or message.</li> <li>Students will know how to use available tools to create unique multimedia products.</li> <li>Students will know how to use digital tools for creative expression.</li> </ul> <b>Students will be able to:</b> <ul style="list-style-type: none"> <li>Students will be able to use a variety of multimedia tools in the creation of unique and remixed designs.</li> </ul>	
Evidence of Learning	

<b>Assessment</b>
Students will create unique multimedia products using a variety of digital tools to communicate messages and ideas
<b>Resources</b>
Photo Editing Canva Painting/Illustrating Software Animation Software Google Drawing Remove.bg WeVideo

<b>Unit 4: Computer Programming</b>	
<b>Content Area: Technology</b>	
<b>Course &amp; Grade Level: 7th Grade Computer Applications</b>	
<b>Summary and Rationale</b>	
<ul style="list-style-type: none"> <li>A survey of core computer programming concepts, such as variables, loops, and conditional logic.</li> <li>Coding skills are used to develop critical thinking and problem solving skills.</li> </ul>	
<b>Recommended Pacing</b>	
12 days	
<b>New Jersey Student Learning Standards for Computer Science and Design Thinking</b>	
<b>Standard: Standards for Computer Science and Design Thinking</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
8.1.8.AP.2	Create clearly named variables that represent different data types and perform operations on their values.
8.1.8.AP.3	Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.
8.1.8.AP.5	Create procedures with parameters to organize code and make it easier to reuse
ISTE 1.5d	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.
<b>Instructional Focus</b>	
<b>Unit Enduring Understandings</b>	
<ul style="list-style-type: none"> <li>Computers can be programmed to perform simple to complex tasks.</li> <li>Computer code must follow logical sequence for accuracy and precision.</li> <li>Computer concepts (i.e. variables, loops, conditional logic) are synthesized across most programming languages.</li> <li>Computer programming requires identifying a problem and applying critical thinking to solve it.</li> <li>Computer programming is an iterative process involving testing and refining code.</li> </ul>	
<b>Unit Essential Questions</b>	
<ul style="list-style-type: none"> <li>How can a problem be broken down into smaller tasks?</li> <li>When is the use of a variable, loop, or conditional logic appropriate in solving a coding problem?</li> <li>How does the logical sequence of coding instructions affect the output?</li> <li>Why is it necessary to test and refine code?</li> </ul>	
<b>Objectives</b>	

<b>Students will know:</b> <ul style="list-style-type: none"> <li>Students will know that a problem can be broken down into smaller tasks.</li> <li>Students will know that there are multiple solutions to a single problem.</li> <li>Students will know that a variety of coding concepts can be used to solve a problem.</li> <li>Students will know that the order of programming instructions affects the output.</li> </ul> <b>Students will be able to:</b> <ul style="list-style-type: none"> <li>Students will be able to apply computer programming skills using logic, analysis, and design flow to tackle and solve computer programming challenges.</li> </ul>
<b>Evidence of Learning</b>
<b>Assessment</b>
Students will work on a variety of independent and collaborative computer programming challenges.
<b>Resources</b>
code.org microbit.org tinkercad.com CMU CS Academy Scratch

Unit 5: Innovative Design	
<b>Content Area: Technology</b>	
<b>Course &amp; Grade Level: 7th Grade Computer Applications</b>	
<b>Summary and Rationale</b>	
<ul style="list-style-type: none"> <li>Using digital tools to create innovative products</li> <li>Exploring innovative and emerging technologies</li> <li>Using various digital tools in conjunction with each other to design and create a unique end product</li> <li>Using appropriate digital tools both singularly and combined to extend beyond traditional applications.</li> </ul>	
<b>Recommended Pacing</b>	
24 days	
<b>New Jersey Student Learning Standards for Career Readiness, Life Literacies and Key Skills</b>	
<b>Standard: Standards for</b>	
<b>CPI #</b>	<b>Cumulative Progress Indicator (CPI)</b>
8.1.8.DA.1	Organize and transform data collected using computational tools to make it usable for a specific purpose.
9.4.8.IML.3	Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.
ISTE 1.6b	Students create original works or responsibly repurpose or remix digital resources into new creations.
ISTE 1.6c	Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
Instructional Focus	
<b>Unit Enduring Understandings</b>	
<ul style="list-style-type: none"> <li>Digital tools are appropriate for creating and editing text, visualizations, graphic images, sound, video, and animation.</li> </ul>	

<ul style="list-style-type: none"> <li>● Digital tools can be used in conjunction with each other to design and create a unique end product</li> <li>● Digital tools can be used to create original works or remixed into unique creations.</li> <li>● Digital tools can be used in innovative ways to extend beyond their traditional uses</li> </ul>
<b>Unit Essential Questions</b>
<ul style="list-style-type: none"> <li>● How can digital tools be innovatively extended beyond their traditional use?</li> <li>● How can digital tools be selected and used in conjunction with each other to create a unique end product?</li> </ul>
<b>Objectives</b>
<p><b>Students will know:</b></p> <ul style="list-style-type: none"> <li>● Students will know that digital tools can go beyond a single traditional application</li> <li>● Students will know that digital tools can be combined in conjunction with each other.</li> <li>● Students will know that they have choices in the tools they select and use in creating innovative products.</li> </ul> <p><b>Students will be able to:</b></p> <ul style="list-style-type: none"> <li>● Students will be able to innovatively extend digital tools beyond their traditional application.</li> <li>● Students will be able to combine the use of multiple digital tools to create a unique end product.</li> <li>● Students will be able to select appropriate tools to meet the needs of their creative project.</li> </ul>
<b>Evidence of Learning</b>
<b>Assessment</b>
Students will create unique and innovative products by selecting and using appropriate digital tools both singularly and combined to extend beyond traditional applications.
<b>Resources</b>
Google Sheets/Excel Google Drawing Google Slides Google Forms Google Sites We Video Unity Tinkercad

Unit 6: Global Awareness with Digital Tools	
<b>Content Area: Technology</b>	
<b>Course &amp; Grade Level: 7th Grade Computer Applications</b>	
Summary and Rationale	
<ul style="list-style-type: none"> <li>Using digital tools to explore global cultures and enhance global awareness</li> <li>Using various digital tools to present and share results of global exploration</li> </ul>	
Recommended Pacing	
6 days	
New Jersey Student Learning Standards for Career Readiness, Life Literacies and Key Skills	
<b>Standard: Standards for</b>	
CPI #	Cumulative Progress Indicator (CPI)
9.4.8.GCA.1	Model how to navigate cultural differences with sensitivity and respect
9.4.8.GCA.2	Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal.
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.
Instructional Focus	
<b>Unit Enduring Understandings</b>	
<ul style="list-style-type: none"> <li>Using technology for communication and collaboration is necessary in our global society</li> <li>Digital tools can be used to virtually explore the different cultures of the world</li> <li>Digital tools can be used for global geographic exploration and discovery</li> </ul>	
<b>Unit Essential Questions</b>	
<ul style="list-style-type: none"> <li>How can technology be used to expand our global awareness?</li> <li>How can digital tools be used to explore global cultures and global geography?</li> <li>How does technology connect us in a global society?</li> </ul>	
<b>Objectives</b>	
<b>Students will know:</b> <ul style="list-style-type: none"> <li>Students will know that technology can be used to expand our global awareness.</li> <li>Students will know that we live in a global society that requires global communication and collaboration.</li> </ul> <b>Students will be able to:</b> <ul style="list-style-type: none"> <li>Students will be able to use technology to expand global awareness.</li> <li>Students will be able to use digital tools to explore global cultures and global geography.</li> <li>Students will be able to use digital tools to present and share results of global exploration.</li> </ul>	
Evidence of Learning	
<b>Assessment</b>	
Students will use digital tools to explore global cultures and geography and will create a digital product to demonstrate their global awareness.	
Resources	
Asiasociety.org Google Earth Digital Maps 3D Map Builder Google Apps Digital presentation tools	



Unit 7: Website Design	
<b>Content Area: Technology</b>	
<b>Course &amp; Grade Level: 7th Grade Computer Applications</b>	
Summary and Rationale	
<ul style="list-style-type: none"> <li>Using a website to convey a message or topic</li> <li>Using digital tools to construct a comprehensive website</li> <li>Using website design to create an organized website structure with user friendly navigation</li> <li>Using various types of multimedia to enhance website content</li> </ul>	
Recommended Pacing	
8 days	
New Jersey Student Learning Standards for Career Readiness, Life Literacies and Key Skills	
<b>Standard: Standards for</b>	
CPI #	Cumulative Progress Indicator (CPI)
9.4.8.IML.3	Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.
ISTE 1.6b	Students create original works or responsibly repurpose or remix digital resources into new creations.
ISTE 1.6c	Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
ISTE 1.6d	Students publish or present content that customizes the message and medium for their intended audiences.
Instructional Focus	
<b>Unit Enduring Understandings</b>	
<ul style="list-style-type: none"> <li>Websites can be used to share content globally</li> <li>Digital and multimedia tools can be used to convey broad concepts and data for effective communication</li> <li>Website design must be user friendly and easily navigated</li> </ul>	
<b>Unit Essential Questions</b>	
<ul style="list-style-type: none"> <li>How can a website be used to share content globally?</li> <li>How can digital website design tools be used to effectively communicate broad concepts and data?</li> <li>What types of multimedia can be included in a website?</li> <li>How can we use hyperlinks and menus to create a website that is easy to navigate?</li> </ul>	
<b>Objectives</b>	
<b>Students will know:</b> <ul style="list-style-type: none"> <li>Students will know the importance of using a website to share content globally.</li> <li>Students will know the effectiveness of using a website to engage their audience.</li> <li>Students will know that logical navigation is an important part of website design.</li> </ul> <b>Students will be able to:</b> <ul style="list-style-type: none"> <li>Students will be able to create a website that effectively communicates concepts and data.</li> <li>Students will be able to include multimedia on a website.</li> <li>Students will be able to use appropriate tools to incorporate user friendly navigation into their website.</li> </ul>	
Evidence of Learning	
<b>Assessment</b>	
Students will design and create an engaging and user-friendly website that includes multimedia content and effectively communicates a topic.	

Resources	
Google Sites	
HTML	