Department of College and Career Readiness

Principles of Information Technology Curriculum

5.0 Credits

Unit Three
Principles of Information Technology

Course Description

Principles of Information Technology explores information communication technology, introduction to Microsoft Office, information management technology, problem solving and troubleshooting:

**Introduction to Microsoft Office** - This program will begin with an introduction to the different versions of Microsoft Windows currently in use, including Windows 7, Windows 8 and Windows 10 including the use of command buttons, menus and dialog boxes used by almost all application programs. This will be followed by an in depth study of the uses of Word for school and business applications. Students will also learn how to use both Excel and PowerPoint and how to put them to use in their school work as well as business applications. Moving applications to "the cloud" will also be covered.

**Information Technology Fundamentals and Applications** - This course provides students with an introduction to information technology fundamentals encompassing both hardware and software. An emphasis is placed on the system unit components, systems and applications software and an introduction to Networking. Topics include CPU, RAM, operating system characteristics, utility programs, communication devices, media and networks. Students learn how to: efficiently search the Internet for information, use several times of productivity software.

This course will build upon students' existing user-level knowledge and experience with personal computer software and hardware in order to present fundamental concepts and techniques that technicians will use every day on the job. Upon completing this course, students will gain the essential skills and technical expertise necessary to troubleshoot, and perform top-level maintenance on basic personal computer hardware and operating systems.
In addition, students will learn the basic knowledge and skills necessary to complete any high school or college level word processing, and presentation assignments as well as understand how to correctly maintain both the programs and hardware associated with using a personal computer.
# Principles of Information Technology

## Pacing Guide

<table>
<thead>
<tr>
<th>Unit</th>
<th>Topic</th>
<th>Suggested Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1</td>
<td>Introduction to Windows (7/8/10) and Microsoft Word</td>
<td>approx. 10 weeks</td>
</tr>
<tr>
<td>Unit 2</td>
<td>Introduction to Excel and PowerPoint</td>
<td>approx. 7 weeks</td>
</tr>
<tr>
<td>Unit 3</td>
<td>Introduction to Personal Computers, the Internet and Application Software</td>
<td>approx. 10 weeks</td>
</tr>
<tr>
<td>Unit 4</td>
<td>System Implementation, Networking and Possible Careers in IT</td>
<td>approx. 8 weeks</td>
</tr>
</tbody>
</table>
# Educational Technology Standards


## Technology Operations and Concepts
- Create a personal digital portfolio which reflects personal and academic interests, achievements, and career aspirations by using a variety of digital tools and resources.

## Creativity and Innovation
- Apply previous content knowledge by creating and piloting a digital learning game or tutorial.

## Communication and Collaboration
- Develop an innovative solution to a real world problem or issue in collaboration with peers and experts, and present ideas for feedback through social media or in an online community.

## Digital Citizenship
- Demonstrate appropriate application of copyright, fair use and/or Creative Commons to an original work.

## Research and Information Literacy
- Produce a position statement about a real world problem by developing a systematic plan of investigation with peers and experts synthesizing information from multiple sources.

## Critical Thinking, Problem Solving, Decision Making
- Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs.
# Career Ready Practices

Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

<table>
<thead>
<tr>
<th>CRP1. Act as a responsible and contributing citizen and employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CRP2. Apply appropriate academic and technical skills.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CRP3. Attend to personal health and financial well-being.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career-ready individuals understand the relationship between personal health, workplace performance and personal well-being; they act on that understanding to regularly practice healthy diet, exercise and mental health activities. Career-ready individuals also take regular action to contribute to their personal financial well-being, understanding that personal financial security provides the peace of mind required to contribute more fully to their own career success.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CRP4. Communicate clearly and effectively and with reason.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others’ time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CRP5. Consider the environmental, social and economic impacts of decisions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or</td>
</tr>
</tbody>
</table>
mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.

**CRP6. Demonstrate creativity and innovation.**
Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

**CRP7. Employ valid and reliable research strategies.**
Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use reliable research process to search for new information. They evaluate the validity of sources when considering the use and adoption of external information or practices in their workplace situation.

**CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.**
Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

**CRP9. Model integrity, ethical leadership and effective management.**
Career-ready individuals consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others’ action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management’s actions and attitudes can have on productivity, morals and organizational culture.
Career Ready Practices

CRP10. Plan education and career paths aligned to personal goals. Career-ready individuals take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.

CRP11. Use technology to enhance productivity. Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

CRP12. Work productively in teams while using cultural global competence. Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.
## Differentiated Instruction

### Strategies to Accommodate Students Based on Individual Needs

<table>
<thead>
<tr>
<th>Time/General</th>
<th>Processing</th>
<th>Comprehension</th>
<th>Recall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra time for assigned tasks</td>
<td>Extra Response time</td>
<td>Precise step-by-step directions</td>
<td>Teacher-made checklist</td>
</tr>
<tr>
<td>Adjust length of assignment</td>
<td>Have students verbalize steps</td>
<td>Short manageable tasks</td>
<td>Use visual graphic organizers</td>
</tr>
<tr>
<td>Timeline with due dates for reports and projects</td>
<td>Repeat, clarify or reword directions</td>
<td>Brief and concrete directions</td>
<td>Reference resources to promote independence</td>
</tr>
<tr>
<td>Communication system between home and school</td>
<td>Mini-breaks between tasks</td>
<td>Provide immediate feedback</td>
<td>Visual and verbal reminders</td>
</tr>
<tr>
<td>Provide lecture notes/outline</td>
<td>Provide a warning for transitions</td>
<td>Small group instruction</td>
<td>Graphic organizers</td>
</tr>
<tr>
<td></td>
<td>Reading partners</td>
<td>Emphasize multi-sensory learning</td>
<td>Use colors to indicate different vocabulary structure</td>
</tr>
<tr>
<td></td>
<td>Online reading/writing programs</td>
<td>Expensive use of prepared audio and video for alternate learning modes</td>
<td>Use of online &quot;games&quot; for individual learning and scoring.</td>
</tr>
</tbody>
</table>

### Assistive Technology
- Computer/whiteboard
- Spell-checker
- Audio books & instruction
- Tablet/laptop for note taking
- Online books for home access

### Tests/Quizzes/Grading
- Extended time
- Study guides
- Shortened tests
- Read directions aloud

### Behavior/Attention
- Consistent daily structured routine
- Simple and clear classroom rules
- Frequent feedback

### Organization
- Individual daily planner
- Display a written agenda
- Note-taking assistance
- Color code materials
### Enrichment

<table>
<thead>
<tr>
<th>Strategies Used to Accommodate Based on Students Individual Needs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Adaption of Material and Requirements</td>
</tr>
<tr>
<td>• Evaluate Vocabulary</td>
</tr>
<tr>
<td>• Elevated Text Complexity</td>
</tr>
<tr>
<td>• Additional Projects</td>
</tr>
<tr>
<td>• Independent Student Options</td>
</tr>
<tr>
<td>• Projects completed individual or with Partners</td>
</tr>
<tr>
<td>• Self Selection of Research</td>
</tr>
<tr>
<td>• Tiered/Multilevel Activities</td>
</tr>
<tr>
<td>• Learning Centers</td>
</tr>
<tr>
<td>• Individual Response Board</td>
</tr>
<tr>
<td>• Independent On-line / Book Studies</td>
</tr>
<tr>
<td>• Open-ended activities</td>
</tr>
<tr>
<td>• Community/Subject expert mentorships</td>
</tr>
</tbody>
</table>
### Assessments

**Suggested Formative/Summative Classroom Assessments**

- Timelines, Charts, Graphic Organizers
- Teacher-created Unit Assessments, Chapter Assessments, Quizzes
- Teacher-created DBQs, Essays, Short Answer
- Accountable Talk, Debate, Oral Report, Role Playing, Think Pair, and Share
- Projects, Portfolio, Presentations, PowerPoint's, Prezi, Gallery Walks
- Homework
- Concept Mapping
- Primary and Secondary Source analysis
- Photo, Video, Animation, Podcast, Song Analysis
- Create an Original Song, Film, or Poem
- Create Electronic Posters
- Create a Blog or Wiki
## Interdisciplinary Connections

### English Language Arts
- Journal writing
- Close reading of industry-related content
- Create a brochure for a specific industry
- Keep a running word wall of industry vocabulary

### Social Studies
- Research the history of a given industry/profession
- Research prominent historical individuals in a given industry/profession
- Use historical references to solve problems

### World Language
- Translate industry-content
- Create a translated index of industry vocabulary
- Generate a translated list of words and phrases related to workplace safety

### Math
- Research industry salaries for a geographic area and juxtapose against local cost of living
- Go on a geometry scavenger hunt
- Track and track various data, such as industry’s impact on the GDP, career opportunities or among of individuals currently occupying careers

### Fine & Performing Arts
- Create a poster recruiting young people to focus their studies on a specific career or industry
- Design a flag or logo to represent a given career field

### Science
- Research the environmental impact of a given career or industry
- Research latest developments in industry technology
- Investigate applicable-careers in STEM fields
New Jersey Student Learning Standards

8.1–Educational Technology

Career Cluster: Applied Technology-1

- 8.1.12.A.1: Create a personal digital portfolio which reflects personal and academic interests, achievements, and career aspiration by using a variety of digital tools and resources
- 8.1.12.A.2: Produce and edit a multi-page digital document for a commercial or professional audience and present it to peers and / or professionals in that related area for review.
- 8.1.12.A.3: Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.
- 8.1.12.C.1: Develop an innovative solution to a real world problem or issue in collaboration with peers and experts, and present ideas for feedback through social media or in an online community.
- 8.1.12.D.1: Demonstrate appropriate application of copyright, fair use and/or Creative Commons in an original work
- 8.1.12.D.2: Evaluate consequences of unauthorized electronic access (e.g., hacking)
- 8.1.12.D.3: Compare and contrast policies on filtering and censorship both locally and globally
- 8.1.12.D.4: Research and understand the positive and negative impact of one’s digital footprint.
- 8.1.12.D.5 Analyze the capacities and limitations of current and emerging technology resources and assess their potential to address personal, social, lifelong learning and career needs.
- 8.1.12.E.1 Produce a position statement about a real world problem by developing a systematic plan of investigation with peers and experts synthesizing information from multiple sources.
- 8.1.12.E.2 Research and evaluate the impact on society of the unethical use of digital tools and present your research to peers.
- 8.1.12.F.1: Evaluate the strengths and limitations of emerging technologies and their impact on education, career, personal and or social needs.
8.2–Technology Education, Engineering, Design, and Computational Thinking—Programming


• 8.2.12.A.1: Create a personal digital portfolio which reflect personal and academic interests, achievements, and a career aspirations by using a variety of digital tools and resources.
• 8.2.12.A.2: Produce and edit a multi-page digital document for a commercial or professional audience and present it to peers and/or professionals in that related area for review.
• 8.2.12.A.3: Collaborate in online courses, learning communities social networks or virtual worlds to discuss a resolution to a problem or issue.
• 8.2.12.B.1: Research and analyze the impact of the design constraints (specifications and limits) for a product or technology driven by a cultural, social, economic or political need and publish for review.
• 8.2.12.B.3: Analyze ethical and unethical practices around intellectual property rights as influenced by human wants and /or needs.
• 8.2.12.B.5: Research the historical tensions between environmental and economic considerations as driven by human needs and wants in the development of a technological product, and present the competing viewpoints to peers for review.
• 8.2.12.D.3: Determine and use appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software in the design, development and creation of a technological product or system
• 8.2.12.D.4: Assess the impacts of emerging technologies on developing countries.
• 8.2.12.E.1: Demonstrate an understanding of the problem-solving capacity of computers in our world
• 8.2.12.E.4: Use appropriate terms in conversation (e.g. troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).
Common Career Technical Core (CCTC)

IT 01 – Demonstrate effective professional communication skills and practices that enable positive customer relationships.
IT 02 – Use product or service design processes and guidelines to produce a quality information technology (IT) product or service.
IT 04 – Demonstrate positive cyber citizenry by applying industry accepted ethical practices and behaviors.
IT 05 - Explain the implications of IT on business development
IT 06 - Describe trends in emerging and evolving computer technologies and their influence on IT practices
IT 08 - Recognize and analyze potential IT security threats to develop and maintain security requirement
IT 10 - Describe the use of computer forensics to prevent and solve information technology crimes and security breaches
IT 11 - Demonstrate knowledge of the hardware components associated with information systems
IT 12 - Compare key functions and applications of software and determine maintenance strategies for computer systems.

IT-SUP3 - Apply appropriate troubleshooting techniques in resolving computer hardware, software and configuration problems.
IT-SUP6 - Evaluate the effectiveness of an information system
IT-SUP7 - Employ system installation and maintenance skills to setup and maintain an information system
IT-SUP9 - Employ technical writing and documentation skills in support of an information system.

IT-WD1 - Analyze customer requirements to design and develop a web or digital communication product
IT-WD4 - Demonstrate the effective use of tools for digital communications production, development and project management
IT-WD6 - Design, create and publish a digital communication product based on customer needs
IT-WD7 - Evaluate the functionality of a digital communication product using industry accepted techniques and metrics.
IT-WD10 - Comply with intellectual property laws, copyright laws and ethical practices when creating web/digital communications
Common Core State Standards (CCSS)

CCSS - English-Language Arts

Key Ideas and Details:

- CCSS.ELA-LITERACY.RL.11-12.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

Craft and Structure:

- CCSS.ELA-LITERACY.RL.11-12.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text.

Integration of Knowledge and Ideas:

- CCSS.ELA-LITERACY.W.11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g. visually, quantitatively) as well as in words in order to address a question or solve a problem.

Production and Distribution of Writing:

- CCSS.ELA-LITERACY.W.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
Common Core State Standards (CCSS)

CCSS - Mathematics

Reason quantitatively and use units to solve problems:

- CCSS.MATH.CONTENT.HSN.Q.A.1 Use units as a way to understand problems and to guide the solution of a multi-step problems: choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

Make inferences and justify conclusions from sample surveys, experiments, and observational studies:

- CCSS.MATH.CONTENT.HSS.IC.B.6 Evaluate reports based on data.

Create equations that describe numbers or relationships:

- CCSS.MATH.CONTENT.HSA.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
Course: Principles of Information Technology

Unit: 3 - Introduction to Personal Computers, the Internet and Application Software

Grade Level: 9-12

**Unit Overview:**
This unit will introduce students to the basis for understanding the core concepts of technology. Students will know the key parts of information systems and interactions as well as be able to distinguish between system software and application software. Students will understand the differences between data and information and how to use computer systems to transform from one to the other. They will also be able to access and evaluate information obtained from web sites, use e-commerce sites and create their own blog or wiki.


**Common Career Technical Core (CCTC):** IT.1, IT.2, IT.4, IT.6, IT.8, IT.10, IT.11, IT.12, IT-SUP.3, IT-SUP.6, IT-7, IT-SUP.9, IT-WD.1, IT-WD.4, IT-WD.6, IT-WD.7, IT-WD.10

**Common Core State Standards (CCSS):** CCSS.ELA-LITERACY.RL.11-12.1.1, CCSS.ELA-LITERACY.RL.11-12.1.6, CCSS.ELA-LITERACY.W.11-12.1.1, CCSS.ELA-LITERACY.W.11-12.1.7, CCSS.ELA-LITERACY.RL.11-12.10

<table>
<thead>
<tr>
<th>Student Learning Objectives (SLOs)</th>
<th>Essential Questions</th>
<th>Skills &amp; Indicators</th>
<th>Sample Activities</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>To introduce students to microcomputer Information systems</td>
<td>What are the 5 key elements of an information system? What is the difference between an operating system and a web browser? What is the difference between a horizontal and vertical</td>
<td>• Be able to discuss the origins of the Internet and the web. • Describe how to use the Web using providers and browsers • Evaluate the accuracy of information presented on the web.</td>
<td>Skills Review - Create a new twitter account for classroom use - Students will use multiple search tools to see the different types of information returned. - Review online banking and online</td>
<td>Computing Essential Timothy &amp; Linda O'Leary McGraw Hill Internet erasing classroom boundaries <a href="http://www.northjersey.com/news/internet-erasing-classroom-boundaries-1.491285">http://www.northjersey.com/news/internet-erasing-classroom-boundaries-1.491285</a></td>
</tr>
<tr>
<td>Student Learning Objectives (SLOs)</td>
<td>Essential Questions</td>
<td>Skills &amp; Indicators</td>
<td>Sample Activities</td>
<td>Resources</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------</td>
<td>---------------------</td>
<td>-------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>IT.8, IT.12, IT-SUP.1, IT-SUP.6, IT-SUP.9</td>
<td>application? What are the 4 major types of computer systems? What is connectivity? What is the difference between B2C, C2C, B2B.</td>
<td>Set up an email address with &quot;owner&quot; signature. What is a SPAM filter? What is a web-based application?</td>
<td>e-commerce sites. Create an online chart or presentation of common features found in horizontal applications such as Google Docs or Microsoft Office.</td>
<td>Teacher Facebook Speech: Protected or Not? <a href="http://digitalcommons.law.byu.edu/cgi/viewcontent.cgi?article=1302&amp;context=elj">Link</a></td>
</tr>
<tr>
<td>CCSS: CCSS.ELA-LITERACY.RL.11-12.1, CCSS.ELA-LITERACY.RL.11-12.1.6, CCSS.ELA-LITERACY.W.11-12.1.1, CCSS.ELA-LITERACY.W.11-12.1.7, CCSS.ELA-LITERACY.RL.11-12.10, Q.A.1, HSS.1.C.B.6, HSA.CED.A.4</td>
<td>Critical Thinking: The First Amendment of the Constitution protect freedom of speech. However, people (teachers included!) have been fired for posting information online. Do you think this is right? Why/Why not?</td>
<td>Groups will make presentations using technology to present their cases.</td>
<td>Students Arrested for Cyber Bullying <a href="http://www.wafb.com/story/2774728/students-arrested-for-cyber-bullying">Link</a></td>
<td></td>
</tr>
<tr>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
</tbody>
</table>

**Web Based Applications** [Link](http://www.computing2014.com/animations/webBasedApps.php)
<table>
<thead>
<tr>
<th>Student Learning Objectives (SLOs)</th>
<th>Essential Questions</th>
<th>Skills &amp; Indicators</th>
<th>Sample Activities</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are input and output devices and how are they used in technology?</td>
<td>Why are there different types of keyboards? What does a keyboard actually do? Are there other devices that people who cannot type can use for input? Why are some keyboards referred to as &quot;virtual&quot;? What are some practical uses for scanners? What is a MFP? How has scanning affected our economy? Should webcams be allowed to be setup in public places without your knowledge?</td>
<td>Define input Describe keyboard entry including different types of keyboards Discuss the major types of pointing devices including mice, touch screens, joysticks and stylus Describe different types of scanning devices Define output Discuss multiple types of monitors as well as different uses</td>
<td></td>
<td>Computing Essential Timothy &amp; Linda O'Leary McGraw Hill</td>
</tr>
<tr>
<td><strong>NJSLS:</strong> 8.1.12.A.3, 8.1.12.D.1, 8.1.12.D.2, 8.1.12.F.1, 8.2, 12.E.4</td>
<td><strong>CCCT:</strong> IT.2, IT.4, IT.11, IT.12, IT.SUP.3, IT.SUP.7, IT.SUP.9</td>
<td><strong>CCSS:</strong> CCSS.ELA-LITERACY.RL.11-12.1.1, CCSS.ELA-LITERACY.RL.11-12.1.6, CCSS.ELA-LITERACY.W.11-12.1.1, CCSS.ELA-LITERACY.W.11-12.1.7, CCSS.ELA-LITERACY.WL.11-12.10, Q.A.1, HSS.1C.B.6, HSA.CED.A.4</td>
<td><strong>Skills Review</strong></td>
<td>14 tech tools that enhance computing for the disabled <a href="https://www.google.com/#q=handicapped+and+computers">https://www.google.com/#q=handicapped+and+computers</a></td>
</tr>
<tr>
<td><strong>CCTC:</strong> IT.2, IT.4, IT.11, IT.12, IT.SUP.3, IT.SUP.7, IT.SUP.9</td>
<td></td>
<td></td>
<td></td>
<td>Mobile apps giving disabled students more academic independence <a href="http://college.usatoday.com/2015/02/13/mobile-apps-giving-disabled-students-more-academic-independence/">http://college.usatoday.com/2015/02/13/mobile-apps-giving-disabled-students-more-academic-independence/</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The Best Printers of 2016 <a href="http://www.pcmag.com/article2/0,2817,2373165,00.asp">http://www.pcmag.com/article2/0,2817,2373165,00.asp</a></td>
</tr>
<tr>
<td>Student Learning Objectives (SLOs)</td>
<td>Essential Questions</td>
<td>Skills &amp; Indicators</td>
<td>Sample Activities</td>
<td>Resources</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------</td>
<td>---------------------</td>
<td>-------------------</td>
<td>-----------</td>
</tr>
</tbody>
</table>
| Assess the relevancy and importance of Specialized Application Software. | **What is the difference between word processing and desktop publishing software?**  
How has audio editing software affected music as we know it today?  
How has YouTube affected home video editing?  
Can we trust (visual) images and videos now that they can be easily manipulated?  
What is WYSIWYG and how has it affected program editing? | • Describe graphics software, including desktop publishing, image editors, illustration programs, image galleries and graphic suites  
• Discuss audio and video editing software  
• Describe multimedia, including links, buttons, and multimedia authoring programs  
• Discuss web authoring, Web site design and Web authoring programs  
• Describe AI, including VR, knowledge-based systems and robotics  
• Discuss cell phone applications and app stores | **Skills Review**  
• Create your own movie and edit it  
• Create a DVD from the finished product  
• Make an audio mixed "tape"  
• Create a list of all the software you have used this semester and note the software falls into.  
• Practice installation and uninstalling application software. | **Introduction to YouTube Presentation**  
**10 More Cool Things You Can Do With YouTube Videos**  
**What is WYSIWYG?**  
[http://webdesign.about.com/video/What-is-WYSIWYG.htm](http://webdesign.about.com/video/What-is-WYSIWYG.htm)  
**Specialized Application Software**  

**CCTC:** IT.1, IT.4, IT.5, IT.6, IT-SUP.6, IT-WD.4, IT-WD.6, IT-WD.7, IT-WD.10  
**CCSS:** CCSS.ELA-LITERACY.RL.11-12.1.1, CCSS.ELA-LITERACY.RL.11-12.1.6, CCSS.ELA-LITERACY.W.11-12.1.1, CCSS.ELA-LITERACY.W.11-12.1.7, CCSS.ELA-LITERACY.RL.11-12.10, Q.A.1, HSS.1C.B.6, HSA.CED.A.4
Students will be introduced to specialized software including Speech Recognition software, Virtual Reality and Robotics software.

**CCTC:** IT.1, IT.4, IT.5, IT.6, IT-SUP.6, IT-WD.4, IT-WD.6, IT-WD.7, IT-WD.10  
**CCSS:** CCSS.ELA-

- **Essential Questions**
  - What is the difference between basic and specialized applications?
  - What does speech recognition software do?
  - How can speech recognition software assist special needs students?
  - What is Virtual Reality?
  - How can virtual reality

- **Skills & Indicators**
  - Set up speech recognition software included in the Microsoft operating system
  - Train your computer to better understand you.
  - Describe 3 areas of artificial intelligence and how it can be applied to the student's future work.

- **Sample Activities**
  - **Interactive Learning**
    Meet with Robotics Club and learn what they do.

- **Resources**
  - [10-things-you-should-know-about-illegally-downloading-music](http://pigeonsandplanes.com/2013/04/10-things-you-should-know-about-illegally-downloading-music)
  - Computing Essential by Timothy & Linda O'Leary McGraw Hill

- **Skills Review**
  - Read text presented by the teacher to teach your unique speech patterns
  - Create a presentation on either AI or VR or Robotics

- **Editorial**
  - Much of today's technology (including as you may recall, the Internet) comes

---

Virtual reality is about to completely transform psychological therapy:

http://www.techinsider.io/how-virtual-reality-is-used-for-ptsd-and-anxiety-therapy-2016-1

Virtual-Reality Tech Helps Treat PTSD in
<table>
<thead>
<tr>
<th>Student Learning Objectives (SLOs)</th>
<th>Essential Questions</th>
<th>Skills &amp; Indicators</th>
<th>Sample Activities</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>LITERACY.RL.11-12.1.1, CCSS.ELA-LITERACY.RL.11-12.1.6, CCSS.ELA-LITERACY.W.11-12.1.1, CCSS.ELA-LITERACY.W.11-12.1.7, CCSS.ELA-LITERACY.RL.11-12.10, Q.A.1, HSS.1C.B.6, HSA.CED.A.4</td>
<td>software be used in medical applications? How can Robotics change our everyday human endeavors over the next 10 years? What are the four types of robotics?</td>
<td>from military spending. How do you feel about this?</td>
<td>Team Learning&lt;br&gt;• Have teams choose one of the 3 areas of specialized software and create a project.</td>
<td>Soldiers <a href="http://www.livescience.com/47258-virtual-reality-ptsd-treatment.html">http://www.livescience.com/47258-virtual-reality-ptsd-treatment.html</a></td>
</tr>
<tr>
<td>Many individuals and institutions played a part in the development and web. Students will be able to discuss the history of the internet and describe the difference between the Internet and the World Wide Web. <strong>NJSLS:</strong> 8.1.12.A.3, 8.1.12.C.1, 8.1.12.D.1, 8.1.12.D.2, 8.1.12.E.2, 8.1.12.F.1, 8.2.12.A.1, 8.2.12.A.2, 8.2.12.A.3, 8.2.12.B.1, 8.2.12.B.3, 8.2.12.B.5</td>
<td>• What is ARPANET and how has it affected technology? • What are the fastest growing applications on the Internet? • What is the difference between a browser and an ISP? • What is the function of an ISP? • What is instant messaging? • What is social networking?</td>
<td>• Describe how the Internet and the Web started • What is the difference between Internet and the Web? • List and describe five of the most common uses of the internet and the Web. • What are the key features you should look for in a search engine?</td>
<td>• Review the cost/benefits of your local ISP and create a chart indicating the pro and cons and costs of these services • Review both search engines and metasearch services and evaluate the benefits and weaknesses of both. • Has the Internet changed the way and the quality of TV and Movies we have seen?</td>
<td>Paterson’s STEM Academy finishes 2nd in robotics competition <a href="http://www.northjersey.com/news/paterson-stem-academy-finishes-2nd-in-robotics-competition-1.1361384">http://www.northjersey.com/news/paterson-stem-academy-finishes-2nd-in-robotics-competition-1.1361384</a></td>
</tr>
<tr>
<td>Computing Essential</td>
<td>Timothy &amp; Linda O’Leary McGraw Hill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Learning Objectives (SLOs)</td>
<td>Essential Questions</td>
<td>Skills &amp; Indicators</td>
<td>Sample Activities</td>
<td>Resources</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>---------------------</td>
<td>---------------------</td>
<td>-------------------</td>
<td>-----------</td>
</tr>
</tbody>
</table>
| **CCTC:** IT.4, IT.6, IT.10, IT-SUP.6, IT-SUP.9, IT-WD.1, IT-WD.6, IT-WD.7, IT-WD.10  
**CCSS:** CCSS.ELA-LITERACY.RL.11-12.1.1, CCSS.ELA-LITERACY.RL.11-12.1.6, CCSS.ELA-LITERACY.W.11-12.1.1, CCSS.ELA-LITERACY.W.11-12.1.7, CCSS.ELA-LITERACY.RL.11-12.10, Q.A.1, HSS.1C.B.6, HSA.CED.A.4 | When were the first desktop computers available for home use?  
Do you think that desktops will soon go the way of the VCR?  
Some schools provide tablets for one-to-one learning. Do you think you would find this a valuable tool to have?  
• Why was Apple named as such and show how it has/has not lived up to its name.  
• Be able to give key advances made in each of the 5 generations of the computer age.  
• What happened to Xerox in the | Students will download books from a Kindle e-reader, iPad with Kindle reader and their phones and do a comparison.  
Students will watch a selection of documentaries on the history of technology and complete worksheets on the topics included. | **History of the World Wide Web**  
http://www.nethistory.info/History%20of%20the%20Internet/web.html  
**A Brief History of the Internet**  
https://www.youtube.com/watch?v=nVTUi6wWN3M  
**100 Must-See Documentaries for Tech Geeks**  
http://www.onlinecollegecourses.com/2009/12/13/100-must-see-
<table>
<thead>
<tr>
<th>Student Learning Objectives (SLOs)</th>
<th>Essential Questions</th>
<th>Skills &amp; Indicators</th>
<th>Sample Activities</th>
<th>Resources</th>
</tr>
</thead>
</table>
| CCSS: CCSS.ELA-LITERACY.RL.11-12.1.1, CCSS.ELALITERACY.RL.11-12.1.6, CCSS.ELALITERACY.W.11-12.1.1, CCSS.ELA- LITERACY.W.11-12.1.7, CCSS.ELA-LITERACY.RL.11-12.10, Q.A.1, HSS.1C.B.6, HSA.CED.A.4 | Why / why not?  
If devices were provided, would you like to use the "flipped learning" style of learning?  
Has access to computers "leveled the playing field" for poorer urban schools? | computer industry?  
• Describe flipped learning and its advantages  
• What is the digital divide? | Create a digital timeline of the evolution of the computer age  
Choose a key technology developer from each generation and present a brief presentation on how he/she advanced the computer age.  
Create a flipped learning lesson on any topic covered this semester to present to the class.  
In groups, give a presentation on computers in schools..better or worse for urban students. | documentaries-for-tech-geeks/Grace Hopper on Letterman  
https://www.youtube.com/watch?v=1-vcErOPofQ  
Admiral “Amazing Grace” Hopper, pioneering computer programmer  
http://www.amazingwomeninhistory.com/amazing-grace-hopper-computer-programmer/  
EMCC  
http://www.computerhistory.org/brochures/companies.php?company=com-42b9d6a4b22e2  
Famous computer Programmers  
http://www.biography.com/people/groups/computer-programmers  
J. Presper Eckert and |
<table>
<thead>
<tr>
<th>Student Learning Objectives (SLOs)</th>
<th>Essential Questions</th>
<th>Skills &amp; Indicators</th>
<th>Sample Activities</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Mauchly</td>
<td><a href="https://www.youtube.com/watch?v=MWpiZrYMQ7SQ">https://www.youtube.com/watch?v=MWpiZrYMQ7SQ</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computing Essential</td>
<td>Timothy &amp; Linda O'Leary McGraw Hill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Flipped Classroom Explained</td>
<td><a href="http://jonbermann.com/the-flipped-classroom-explained/">http://jonbermann.com/the-flipped-classroom-explained/</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flip Learning Network</td>
<td><a href="http://flippedlearning.org/">http://flippedlearning.org/</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Responsibility</td>
<td><a href="http://www.digitalrespons">http://www.digitalrespons</a></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Learning Objectives (SLOs)</td>
<td>Essential Questions</td>
<td>Skills &amp; Indicators</td>
<td>Sample Activities</td>
<td>Resources</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>-------------------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ibility.org/digital-divide-the-technology-gap-between-rich-and-poor/</td>
</tr>
<tr>
<td>Unit 3 Vocabulary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td>JPEG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animate</td>
<td>Keyword</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attachment</td>
<td>Laptop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backup</td>
<td>Microphone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bandwidth</td>
<td>Multimedia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blog</td>
<td>Operating system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue Tooth</td>
<td>Off-line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Browser</td>
<td>Optical discs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cellular</td>
<td>Output device</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable</td>
<td>Password</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connectivity</td>
<td>Processor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database</td>
<td>Program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance learning</td>
<td>Search engine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Downloading</td>
<td>Security</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSL</td>
<td>Skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e-commerce</td>
<td>Spam</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enhancement</td>
<td>Surf</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freeware</td>
<td>Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graphics</td>
<td>Update</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Handheld</td>
<td>Virtual Reality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Help desk</td>
<td>Visual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instant messaging</td>
<td>Website</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td>Youth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input/Output</td>
<td>Zealous</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Suggested Unit Projects

**Choose At Least One**

| Teams will create a commercial promoting their school and why it should be chosen as the number one school in Paterson. Topics to be included might be awards received by students, clubs, trips, athletics, interviews, teachers, opportunities, etc. | Teams will create their own robotics product and create a commercial "selling" this product either to the public or to research institutions. The product must be buildable and useful. |

---

# Suggested Structured Learning Experiences

| Meet with instructors in the PCCC STEM Lab to learn about Lego MindStorm and other robotics programs  
Passaic County Community College - Main Campus  
STEM Office  
Anjali Thanawala  
One College Boulevard  
Paterson NJ 07505  
Tel: 973-684-6800 | Set up a Skype meeting with Professor Skip Rizzo to discuss VR and its use with returning soldiers and others with PTSD.  
USC Institute for Creative Technologies  
12015 Waterfront Drive  
Playa Vista, CA 90094-2536  
(310) 574-5700 tel  
(310) 574-5725 fax  
rizzo@ict.usc.edu |

| Apple Store,  
Fifth Avenue  
Apple retail store selling iPhones, iPads & more in sleekly designed spaces.  
(212) 336-1440 | Microsoft Store  
677 5th Ave, New York, NY 10022  
(212) 824-3100 |