

**Computers**  
**Grade 4 - Marking Period 1**  
**Curriculum Map**

**Big Ideas: Keyboarding and Word Processing**

Enduring Understandings	Essential Questions	Skills/21 <sup>st</sup> Century Skills	Standards	Benchmarks Assessments
<p>Student uses proper keyboarding for a variety of purposes.</p> <p>Student uses word processors for a variety of purposes.</p> <p><b>Vocabulary:</b></p> <p>keyboarding, WPM, AWPM, accuracy, home row, word processing, Google docs</p>	<p>Why is keyboarding important and how can I improve my keyboarding skills?</p> <p>How can I use word processing in everyday tasks?</p> <p><b>Suggested Modifications:</b></p> <p>Modification of curricular content and/or student products</p> <p>Modify Difficulty Level</p> <p>Modify Assignments</p>	<ul style="list-style-type: none"> <li>● understand the importance of using proper keyboarding techniques to improve speed and accuracy</li> <li>● be able to define keyboarding, WPM (words per minute), AWPM (adjusted words per minute) and accuracy</li> <li>● know the home row keys</li> <li>● use proper typing techniques and correct hand and fingers</li> <li>● improve AWPM throughout the year</li> <li>● be able to identify uses of a word processor, create a new document, enter text, navigate, save and print a document</li> <li>● be able to format a word processing document using font, color, size, bold, italics, and underline.</li> <li>● be able to insert and format clip art and shapes into a document</li> <li>● be able to use the justification functions, the TAB key, and the cut, copy, and paste functions</li> <li>● be able to use the spelling and grammar functions</li> <li>● be able to create and format a document with multiple paragraphs that includes a proper heading, correct indenting, spacing, spelling and grammar</li> <li>● be able to type a page in a single sitting using proper keyboarding techniques</li> </ul> <p><i>-Think and reflect critically on learning experiences.</i></p> <p><i>-Apply knowledge, attitudes, behaviors, and skills across disciplines in appropriate and effective ways.</i></p> <p><i>-Use technology as a tool to research, organize, evaluate, and communicate information.</i></p> <p><i>-Demonstrate the ability to use language to read, write, listen, and speak.</i></p>	<p><b>8.1.5.A.1-</b>Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</p> <p><b>8.1.5.A.2-</b>Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.</p> <p><b>W.4.6-</b>With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of one page in a single sitting.</p>	<p>Observation</p> <p>Examination of Typing Plan Activities</p> <p>Examination of Progress Results</p> <p>Pre and Post Touch Typist Test</p> <p>Keyboarding/ Word Processing Project</p> <p><b>Suggested Resources:</b></p> <p>Typing Instructor Web</p> <p>Microsoft Word</p> <p>Google Docs</p>

Comers  
Grade 4 - Marking Period 2  
Curriculum Map

**Big Ideas: EiE: No Bones About It and Cyber Safety/Bullying**

Enduring Understandings	Essential Questions	Skills/21 <sup>st</sup> Century Skills	Standards	Benchmark Assessments
<p>Student understands that engineers follow the engineering design process to solve problems.</p> <p>Student understands human, cultural, and societal issues related to technology and practice ethical and legal behavior.</p> <p><b>Vocabulary:</b></p> <p>technology, engineer, biomedical engineer, material, properties, design, joint, muscle, bone, tendon, ligament, brace, goniometer, cyber safety, cyber ethics, cyber bullying, cyber security</p>	<p>What are the steps of the engineering design process and how do biomedical engineers use them to solve problems related to the human body?</p> <p>What strategies should I practice to stay safe when using technology and what should I do if I am being cyber bullied?</p> <p>What are the consequences of participating in cyber bullying or demonstrating other unethical cyber behaviors?</p> <p><b>Suggested Modifications:</b></p> <p>Flexible Grouping</p> <p>Modification of curricular content and/or student products</p> <p>Modify Difficulty Level</p> <p>Modify Assignments</p>	<ul style="list-style-type: none"> <li>• be able describe biomedical engineering</li> <li>• be able to identify and use the steps of the Engineering Design Process: ASK, IMAGINE, PLAN, CREATE, and IMPROVE</li> <li>• be able to describe the basic parts of the knee</li> <li>• be able to use a goniometer to measure knee range of motion</li> <li>• collaboratively design and write a plan for a knee brace</li> <li>• collaboratively create and test knee brace</li> <li>• collaboratively discuss ways to improve knee brace based on testing results</li> <li>• be able to describe cyber safety, cyber bullying, and cyber ethics</li> <li>• understand the consequences of unethical cyber behaviors, including cyber bullying</li> <li>• be able to identify strategies for using cyber technology safely</li> <li>• be able to identify strategies if being targeted by cyber bullying</li> </ul> <p><i>-Solve different kinds of non-familiar problems in both conventional and innovative ways.</i></p> <p><i>-Create new and worthwhile ideas.</i></p> <p><i>-Elaborate, refine, analyze, and evaluate ideas in order to improve and maximize creative efforts.</i></p> <p><i>-Demonstrate imagination and curiosity.</i></p> <p><i>-Develop, implement, and communicate new ideas to others effectively.</i></p> <p><i>-View failure as an opportunity to learn.</i></p> <p><i>-Be open and responsive to new and diverse perspectives.</i></p> <p><i>-Demonstrate ability to work effectively and respectfully with teams.</i></p> <p><i>-Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal.</i></p> <p><i>-Assume shared responsibility for collaborative work and value contributions of all team members.</i></p> <p><i>-Think and reflect critically on learning experiences.</i></p> <p><i>-Apply knowledge, attitudes, behaviors, and skills across disciplines in appropriate and effective ways.</i></p> <p><i>-Use digital technologies, communication/networking tools, and social networks appropriately to access, manage, integrate, evaluate, and create information to successfully function in a knowledge economy.</i></p> <p><i>-Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technology.</i></p>	<p><b>8.2.5.C.1-</b> Collaborate with peers to illustrate components of a designed system.</p> <p><b>8.2.5.C.2-</b> Explain how specifications and limitations can be used to direct a product's development.</p> <p><b>8.2.5.C.4-</b> Collaborate and brainstorm with peers to solve a problem evaluating all solutions to provide the best results with supporting sketches or models.</p> <p><b>8.2.5.D.1-</b> Identify and collect information about a problem that can be solved by technology, generate ideas to solve the problem, and identify constraints and trade-offs to be considered.</p> <p><b>8.2.5.D.2-</b> Evaluate and test alternative solutions to a problem using the constraints and trade-offs identified in the design process.</p> <p><b>8.2.5.D.3-</b> Follow step by step directions to assemble a product or solve a problem.</p> <p><b>8.1.5.D.3-</b> Demonstrate an understanding of the need to practice cyber safety, cyber security, and cyber ethics when using technologies and social media.</p> <p><b>5.3- (Human Body) NJ CCCS Math</b></p> <p><b>4.MD.A-(Measurement and Data)</b></p>	<p>Observation</p> <p>Activity Sheets</p> <p>Knee Brace Project</p> <p>Formal Written Assessment</p> <p>Internet Safety Quiz</p> <p><b>Suggested Resources:</b></p> <p>Engineering is Elementary</p> <p>NASA EDP video</p> <p>Widgets (iknowthat.com)</p> <p>Brainpop</p> <p>Stopbullying.com</p> <p>Surf Swell Island - Internet Safety Quiz</p> <p>Safety Land -</p> <p>Internet Safety Game</p>

**Computers**  
**Grade 4 - Marking Period 3**  
**Curriculum Map**

**Big Ideas: Robotics and Spreadsheets**

<b>Enduring Understandings</b>	<b>Essential Questions</b>	<b>Skills/21<sup>st</sup> Century Skills</b>	<b>Standards</b>	<b>Benchmark Assessments</b>
<p>Student will be able to create a programmable model to demonstrate the knowledge and operation of digital tools and technological systems.</p> <p>Student uses spreadsheets for a variety of purposes.</p> <p><b>Vocabulary:</b></p> <p>robotics, programming, code, hub, motor, sensors, pulley, belt, spreadsheets, charts</p>	<p>What is a pulley and belt drive system?</p> <p>How does changing the pulley or belt affect the actions of the robot?</p> <p>How can I use spreadsheets in everyday tasks?</p> <p><b>Suggested Modifications:</b></p> <p>Flexible Grouping</p> <p>Modification of curricular content and/or student products</p> <p>Modify Difficulty Level</p> <p>Modify Assignments</p>	<ul style="list-style-type: none"> <li>• be able to build and program two mechanical birds that make sounds and are motorized to dance using a pulley and belt drive system.</li> <li>• be able to identify the pulleys and belt drive mechanism.</li> <li>• be able to build and test the dancing birds' movement.</li> <li>• be able to modify the dancing behavior by changing the pulleys and the belt to affect the speed and direction of motion.</li> <li>• understand how the diameter of the pulleys affects the speed and direction of motion.</li> <li>• understand the effect changing the belt has on the direction and speed of the dancing bird's movement.</li> <li>• be able to create a spreadsheet from data they gather from a survey they conduct</li> <li>• be able to graph and analyze the data and produce a report explaining the analysis of the data</li> </ul> <p><i>-Use various types of reasoning as appropriate to the situation.</i></p> <p><i>-Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems.</i></p> <p><i>-Solve different kinds of non-familiar problems in both conventional and innovative ways.</i></p> <p><i>-Demonstrate the ability to work effectively and respectfully with teams.</i></p> <p><i>-Assume shared responsibility for collaborative work and value the contributions of all teammates.</i></p> <p><i>-Think and reflect critically on learning experiences.</i></p> <p><i>-Apply knowledge, attitudes, behaviors, and skills across disciplines in appropriate and effective ways.</i></p> <p><i>-Use technology as a tool to research, organize, evaluate, and communicate information.</i></p> <p><i>-Demonstrate ability to reason with numbers and other mathematical concepts.</i></p>	<p><b>8.2.5.D.3</b>-Follow step by step directions to assemble a product or solve a problem.</p> <p><b>8.2.5.E.1</b>-Identify how computer programming impacts our everyday lives.</p> <p><b>8.2.5.E.2</b>-Demonstrate an understanding of how a computer takes input of data, processes, and stores the data through a series of commands, and outputs information.</p> <p><b>8.2.5.E.3</b>-Using a simple visual programming language, create a program using loops, events and procedures to generate specific output.</p> <p><b>8.2.5.E.4</b>-Use appropriate terms in conversation.</p> <p><b>8.1.5.A.1</b>-Select and use appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</p> <p><b>8.1.5.A.4</b>-Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data.</p>	<p>Observation</p> <p>Activity Sheets</p> <p>Project - Robot Model and Program</p> <p>Project - Spreadsheet, Graph, and Report</p> <p><b>Suggested Resources:</b></p> <p>Lego WeDo Robotics</p> <p>Microsoft Excel</p> <p>Google Sheets</p>

**Computers**  
**Grade 4 - Marking Period 4**  
**Curriculum Map**

**Big Ideas: Multimedia Authoring**

Enduring Understandings	Essential Questions	Skills/21 <sup>st</sup> Century Skills	Standards	Benchmark Assessments
<p>Student will be able to use multimedia authoring tools for a variety of purposes.</p> <p><b>Vocabulary:</b></p> <p>multimedia authoring tool, card, stack, hyperlinks</p>	<p>What is a multimedia authoring tool and how can I use it?</p> <p><b>Suggested Modifications:</b></p> <p>Modification of curricular content and/or student products</p> <p>Modify Difficulty Level</p> <p>Modify Assignments</p>	<ul style="list-style-type: none"> <li>• be able to describe a multimedia authoring tool</li> <li>• be able to explain the difference between edit and browse mode</li> <li>• understand the terms card and stack</li> <li>• be able to add backgrounds, text, and graphic objects</li> <li>• be able to use a webcam to take and insert a photo</li> <li>• be able to use a webcam to create and insert a video</li> <li>• be able to add hyperlinks</li> <li>• be able to add sounds and transitions</li> </ul> <p><i>-Demonstrate imagination and curiosity.</i></p> <p><i>-Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact.</i></p> <p><i>-Demonstrate the ability to use language to read, write, listen, and speak.</i></p> <p><i>-Apply knowledge, attitudes, behaviors, and skills across disciplines in appropriate and effective ways.</i></p> <p><i>-Use technology as a tool to research, organize, evaluate, and communicate information.</i></p> <p><i>-Think and reflect critically on learning experiences.</i></p>	<p><b>8.1.5.A.1</b>-Select and use appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</p>	<p>Observation</p> <p>Project -</p> <p>Multimedia Project</p> <p><b>Suggested Resources:</b></p> <p>HyperStudio</p>