

**Maywood Public Schools**

**Technology  
Education**

**Grade 6**

## Computer Cycle—Grade 6

### I. Introduction/Overview/Philosophy

Building on the skills learned in Grade 4 and Grade 5, students will be exposed to more advanced application software functions of spreadsheets, drawing, word processing, and presentation. An emphasis will be placed on integrating the use of computer applications. The projects in this class will reinforce the core applications taught in other academic disciplines such as math, science, or language arts. Projects will encourage students to seek out and use technology appropriately to investigate, solve problems, and communicate their findings effectively. A well-balanced approach to technology instruction develops a higher level of competency within students including critical thinking skills, integrity, ethical/moral accountability, and personal responsibility. Students will continue to become familiar with computer coding.

### II. Objectives

#### Course Outline

**\*\*Note:** this outline will not be completed in any particular order. Rather, the topics will be covered through projects that integrate a variety of topics.\*\*

- I. Computer Operations
  - A. Basic computer operations
    - 1. Access, save to, and retrieve documents from servers and online drives
    - 2. Keep server and online drives organized
    - 3. Troubleshoot minor problems and issues with operation of computer
  - B. Master touch typing
    - 1. Master keyboarding techniques
    - 2. Key all letters (lower and upper case) and symbols using proper techniques
    - 3. Improve typing speed and accuracy
- II. Computer Applications
  - A. Word Processing
    - 1. Review skills
      - i. Create bulleted and numbered lists
      - ii. Format text in multiple columns
      - iii. Create and format tables
      - iv. Format cell contents in a table
      - v. Edit table properties
      - vi. Custom formatting of documents
      - vii. Refine proofreading skills
      - viii. Paragraph and document formats
    - 2. Intermediate/Advanced word processing skills
      - i. Create custom formatted documents (i.e. newsletters, brochures)
      - ii. Create hyperlinks in documents
      - iii. Work with multiple files
      - iv. Copy data between word processing documents
      - v. Embed spreadsheets and spreadsheet charts in documents
  - B. Drawing
    - 1. Review skills

- i. Arrange/Layer objects
      - ii. Use objects in documents
      - iii. Freehand tools
      - iv. Group objects
      - v. Duplicate objects
    2. Intermediate/Advanced drawing skills
      - i. Create custom designed objects (i.e. logos, illustrations)
      - ii. Use drawing tools to enhance objects in other applications
  - C. Spreadsheets
    1. Review skills
      - i. Enter, edit, format data
      - ii. Use sort to organize spreadsheet data
      - iii. Use intermediate formulas and functions to perform calculations
      - iv. Design graphs/charts from spreadsheet data
    2. Intermediate/Advanced spreadsheet skills
      - i. Copy data between spreadsheets
      - ii. Copy data between spreadsheets and word processing documents
      - iii. Copy spreadsheet chart into word processing file
  - D. Presentation
    1. Review skills
      - i. Using themes and layouts
      - ii. Incorporate spreadsheet in presentation
      - iii. Add animations
      - iv. Create speaker notes
    2. Intermediate/Advanced presentation skills
      - i. Incorporate custom drawings in presentation
      - ii. Incorporate spreadsheet charts in presentation
      - iii. Use master slides
      - iv. Master presenting orally to group
- III. Digital Citizenship
- A. Internet Safety
    1. Reinforce importance of Internet safety and maintaining privacy online
    2. Apply online safety rules and guidelines
    3. Identify “digital footprint” and ways to monitor and maintain positive footprint
  - B. Website Evaluation
    1. Evaluate websites for accuracy, authenticity, and bias
  - C. Ethical use of technology
    1. Copyright, Fair Use, creative commons, online plagiarism
- IV. Computer Science/Computer Programming
- A. Computer Science
    1. Identify ways computers are used that have an impact across the range of human activity and within different careers where they are used.
    2. Review basics of how a computer works
    3. Identify basics of how the Internet works
  - B. Computer Programming (Coding)
    1. Write a computer program to perform a specific task
    2. Debug a computer program to identify and solve errors
    3. Use loops and conditionals in code
    4. Begin writing basic JavaScript code

**Student Outcomes:**

After successfully completing this course, the student will:

- master touch typing techniques
- create word processing documents with tables, lists, and links
- create word processing documents with embedded spreadsheets
- enter and edit data in a spreadsheet
- create formulas or use calculation functions to do computations with the data in a spreadsheet
- use data to create appropriate charts
- create custom designed drawing objects
- use drawing objects in other applications
- create a presentation containing text, graphics, spreadsheets, spreadsheet charts
- integrate the use of multiple computer applications
- code and debug a computer program to complete a specific task
- apply cybersafety rules
- exhibit the ethical use of technology
- critically evaluate websites

**New Jersey Student Learning Standards****CAREER READY PRACTICES****CRP1 Act as a responsible and contributing citizen and employee**

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.

**CRP2 Apply appropriate academic and technical skills**

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.

**CRP4 Communicate clearly and effectively and with reason.**

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.

**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.

***CRP 7 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.

***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.

**TECHNOLOGY STANDARDS**

***STANDARD 8.1: EDUCATIONAL TECHNOLOGY: ALL STUDENTS WILL USE DIGITAL TOOLS TO ACCESS, MANAGE, EVALUATE, AND SYNTHESIZE INFORMATION IN ORDER TO SOLVE PROBLEMS INDIVIDUALLY AND COLLABORATIVELY AND TO CREATE AND COMMUNICATE KNOWLEDGE.***

8.1.8.A.1 Demonstrate knowledge of a real world problem using digital tools.

8.1.8.A.2 Create a document (e.g. newsletter, reports, personalized learning plan, business letters or flyers) using one or more digital applications to be critiqued by professionals for usability.

8.1.8.A.4 Graph and calculate data within a spreadsheet and present a summary of the results

8.1.8.B.1 Synthesize and publish information about a local or global issue or event (ex. telecollaborative project, blog, school web).

8.1.8.D.1 Understand and model appropriate online behaviors related to cyber safety, cyber bullying, cyber security, and cyber ethics including appropriate use of social media.

8.1.8.D.2 Demonstrate the application of appropriate citations to digital content.

8.1.8.D.3 Demonstrate an understanding of fair use and Creative Commons to intellectual property.

8.1.8.D.4 Assess the credibility and accuracy of digital content.

8.1.8.D.5 Understand appropriate uses for social media and the negative consequences of misuse.

8.1.8.F.1 Explore a local issue, by using digital tools to collect and analyze data to identify a solution and make an informed decision.

**TECHNOLOGY STANDARDS**

***STANDARD 8.2: TECHNOLOGY EDUCATION, ENGINEERING, DESIGN, AND COMPUTATIONAL THINKING – PROGRAMMING: 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.***

8.2.8.E.2 Demonstrate an understanding of the relationship between hardware and software.

8.2.8.E.3 Develop an algorithm to solve an assigned problem using a specified set of commands and use peer review to critique the solution.

8.2.8.E.4 Use appropriate terms in conversation (e.g., programming, language, data, RAM, ROM, Boolean logic terms).

### III. Proficiency Levels

This is a cycle course for Grade 6.

### IV. Methods of Assessment

The teacher will provide a variety of assessments. Among them are quizzes/tests, group projects, simulations, computer projects, homework, oral presentations, and class participation.

### V. Grouping

This is a required Grade 6 cycle course.

### VI. Articulation/Scope & Sequence/Time Frame

Course length is one quarter.

### VII. Resources

Resources include but are not limited to:

- *Word It! Teen-based Activities for Microsoft Word* by B.E. Publishing 2011
- *Excel It! Teen-based Activities for Microsoft Excel* by B.E. Publishing 2011
- *Using Google Docs in the Classroom Grades 6-8* by Steve Butz by Teacher Created Resources
- *Internet Literacy Grades 6-8* by Heather Wolpert-Gawron by Teacher Created Resources
- BrainPop at <http://www.brainpop.com/>
- *Retool Your School: The Educator's Essential Guide to Google's Free Power Apps* by James Lerman and Ronique Hicks by International Society for Technology in Education
- Common Sense Media: <https://www.commonsensemedia.org>
- Netsmartz Workshop: Tweens at <http://www.nsteens.org/>
- Code at <http://code.org/>
- <http://scratch.wiki.hoover.k12.al.us/Lesson+Ideas>
- <http://scratched.media.mit.edu/resources/new-scratch>
- <http://scratched.media.mit.edu/resources/scratch-curriculum-guide-draft>
- <http://www.edutopia.org/blog/15-ways-teaching-students-coding-vicki-davis>
- [http://tewinkle.nmusd.us/cms/page\\_view?d=x&piid=&vpid=1382602919957](http://tewinkle.nmusd.us/cms/page_view?d=x&piid=&vpid=1382602919957)
- <http://edtechintegrated.com/interactive-ed-digital-gaming-andor-simulation/scratch-games-created-by-rfbms-students/>
- <http://bjc.berkeley.edu/>
- <http://snap.berkeley.edu/>
- <https://www.typingclub.com/>
- Khan Academy <https://www.khanacademy.org/>
- Teacher-created handouts for projects

### VIII. Suggested Activities

Integrate Internet research into formulating and designing projects using word processing, spreadsheets, presentations, and draw techniques.

## IX. Methodologies

The following methods of instruction are suggested: lecture, group projects, demonstration, and class presentations.

## X. Interdisciplinary Connections

SL.6.4. Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate speaking behaviors (e.g., eye contact, adequate volume, and clear pronunciation).

This course incorporates computer-based projects with content area curriculum topics. In addition, students will develop writing and oral presentation skills as well as proficiency in computer applications.

## XI. Differentiating Instruction for Students with Special Needs: Students with Disabilities, Students at Risk, English Language Learners, and Gifted & Talented Students

Differentiating instruction is a flexible process that includes the planning and design of instruction, how that instruction is delivered, and how student progress is measured. Teachers recognize that students can learn in multiple ways as they celebrate students' prior knowledge. By providing appropriately challenging learning, teachers can maximize success for all students.

Differentiating in this course includes but is not limited to:

### *Differentiation for Support (ELL, Special Education, Students at Risk)*

- Rephrase directions, questions, explanations
- One on one modeling and demonstration of techniques and skills
- Modify assignments as needed
- Preferential seating
- Assign a buddy as needed, same language or English speaking
- Allow errors in speaking and writing
- Accept participation at any level, even if very limited
- Allow spelling errors
- Provide hard copies of direction sheets and project rubrics
- Allow extended time to answer questions, complete assignments and projects
- Follow IEP accommodations/modifications
- Provide positive feedback and rewards as necessary
- Consult with classroom teacher for behavior interventions
- Consult with guidance counselor and/or student assistance counselor for procedures and/or action plans

### *Differentiation for Enrichment*

- Provide extension activities
- Allow students to act as peer "assistors" for their classmates
- Allow for student choice in project completion
- Build on students' intrinsic interests and motivators
- Allow independent study
- Scale project objectives to more challenging outcomes

## XII. Professional Development

The teacher will continue to improve expertise through participation in a variety of professional development opportunities.

**XIII. Curriculum Map/Pacing Guide**

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk of School Failure, English Language Learners, & Gifted & Talented Students	Standards	Assessments
<p><b>Computer Operations/Touch Typing</b></p> <ul style="list-style-type: none"> <li>• Access, save to, and retrieve documents from servers and online drives</li> <li>• Organize server and online drives</li> <li>• Troubleshoot minor problems with computer</li> <li>• Improve typing speed and accuracy</li> </ul> <p><i>Touch typing technique and speed/accuracy is reviewed/emphasized throughout the course.</i></p>	<p>1 Week</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> <li>• Rephrase directions, questions, explanations</li> <li>• One on one modeling and demonstration of techniques and skills</li> <li>• Modify assignments as needed</li> </ul> <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> <li>• Provide extension activities</li> <li>• Allow students to act as peer “assistors” for their classmates</li> </ul>	<p><i>Standards:</i> CRP11, 8.1.8.A.1</p>	<p><i>Formative Assessment:</i> Observation of proper procedures. Demonstration to peers. Online typing practice activities.</p> <p><i>Summative Assessment:</i> Proper use of saving/submitted final products demonstrated through each unit project. Demonstration of troubleshooting problems. Typing tests for speed and accuracy.</p>



Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk of School Failure, English Language Learners, & Gifted & Talented Students	Standards	Assessments
<p><b>Computer Applications - Word Processing</b></p> <ul style="list-style-type: none"> <li>• Review skills                             <ul style="list-style-type: none"> <li>○ Bulleted / numbered lists</li> <li>○ Format text in columns</li> <li>○ Create and format tables</li> <li>○ Paragraph &amp; document formats</li> </ul> </li> <li>• Intermediate / Advanced Skills                             <ul style="list-style-type: none"> <li>○ Create custom formatted documents</li> <li>○ Work with multiple files</li> <li>○ Embed spreadsheets and spreadsheet charts</li> </ul> </li> </ul>	<p>2 Weeks</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> <li>• Rephrase directions, questions, explanations</li> <li>• Provide hard copies of direction sheets and project rubrics</li> <li>• Allow extended time to complete project</li> </ul> <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> <li>• Build on students’ intrinsic interests and motivators</li> <li>• Scale project objectives to more challenging outcomes</li> </ul>	<p><i>CRP2, CRP4, CRP6, CRP11, CRP12, 8.1.8.A.1, 8.1.8.A.2, 8.1.8.B.1</i></p>	<p><i>Formative Assessment:</i>                      Observation and questioning.                      Quick formatting practices.                      Teach a friend.                      Exit tickets.</p> <p><i>Summative Assessment:</i>                      Final unit project:                      Foreign Country Travel Project-                      Design and create document (travel brochure, social media page, etc..) to advertise travel to a country in specific part of world.                      Assessed using rubric.</p>

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk of School Failure, English Language Learners, & Gifted & Talented Students	Standards	Assessments
<p><b>Computer Applications – Drawing</b></p> <ul style="list-style-type: none"> <li>• Review of basics                             <ul style="list-style-type: none"> <li>○ Arrange &amp; layer objects</li> <li>○ Use freehand tools</li> <li>○ Group &amp; duplicate objects</li> </ul> </li> <li>• Create custom designed objects</li> <li>• Use drawing tools in other applications</li> </ul>	<p>1 Week</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> <li>• Modeling and demonstration of techniques one-on-one</li> <li>• Allow participation at any level</li> <li>• Provide positive feedback of creativity</li> </ul> <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> <li>• Allow for student choice</li> <li>• Scale project to more challenging outcome</li> </ul>	<p><i>CRP2, CRP6, CRP11, CRP12, 8.1.8.A.1, 8.1.8.A. 2, 8.1.8.B. 1, 8.1.8.D.1</i></p>	<p><i>Formative Assessment:</i>                      Observation and questioning.                      Quick draw.                      Small group demonstrations.</p> <p><i>Summative Assessment:</i>                      Final unit project:                      Technology Topic Poster-                      Design and create poster to display in school for other students to give information about important technology topic (cyberbullying, Internet safety, Chromebook care, etc..) Assessed using rubric.</p>

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk of School Failure, English Language Learners, & Gifted & Talented Students	Standards	Assessments
<p><b>Computer Applications – Spreadsheets</b></p> <ul style="list-style-type: none"> <li>• Review of basics                             <ul style="list-style-type: none"> <li>○ Enter, edit, format data</li> <li>○ Use sort to organize data</li> <li>○ Use formulas &amp; functions</li> <li>○ Design graphs &amp; charts</li> </ul> </li> <li>• Copy data between spreadsheets</li> <li>• Copy data between spreadsheets and word processor</li> <li>• Copy spreadsheet charts into other applications</li> </ul>	<p>2 Weeks</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> <li>• Modify assignments to simplify difficult tasks and terminology</li> <li>• Assign a buddy to provide support and assistance</li> <li>• Accept participation at limited levels</li> </ul> <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> <li>• Provide extension activities</li> <li>• Allow student to act as peer assistors</li> <li>• Scale project to more challenging outcomes</li> </ul>	<p><i>CRP2, CRP11, 8.1.8.A.1, 8.1.8.A.4</i></p>	<p><i>Formative Assessment:</i>                      Observation and questioning.                      Exit tickets.                      Google Forms survey.                      Think-Pair-Share.</p> <p><i>Summative Assessment:</i>                      Final Unit Project:                      Internet Shopping Spree-                      Design spreadsheet including formulas and graphs/charts to record and analyze data of items found on Internet according to specific criteria.                      Assessed using rubric.</p>

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk of School Failure, English Language Learners, & Gifted & Talented Students	Standards	Assessments
<p><b>Computer Applications – Presentations</b></p> <ul style="list-style-type: none"> <li>• Review of basics               <ul style="list-style-type: none"> <li>○ Incorporate spreadsheet in presentation</li> <li>○ Use animations</li> <li>○ Create speaker notes</li> </ul> </li> <li>• Incorporate custom drawings and spreadsheet charts in presentations</li> <li>• Use master slides</li> <li>• Present to group</li> </ul>	2 Weeks	<p><i>For Support:</i></p> <ul style="list-style-type: none"> <li>• Allow errors in writing and speaking</li> <li>• Assign buddy and supportive group</li> <li>• Allow participation at any level</li> </ul> <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> <li>• Build on students’ intrinsic interests</li> <li>• Allow independent study if requested</li> <li>• Provide opportunities for extension of project</li> </ul>	<p><i>CRP1, CRP2, CRP4, CRP6, CRP11, CRP12, 8.1.8.A.1, 8.1.8.B.1, 8.1.8.D.1, 8.1.8.D.5, 8.1.8.F.1</i></p>	<p><i>Formative Assessment:</i> Observation and questioning. Students demonstrate, “One thing I discovered today.” Small group practice presentations.</p> <p><i>Summative Assessment:</i> Final Unit Project: Digital Literacy- Choose a topic (Internet safety, online plagiarism, digital footprint, etc..) and create public service message for students on topic through the use of a presentation. Assessed using rubric.</p>

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk of School Failure, English Language Learners, & Gifted & Talented Students	Standards	Assessments
<p><b>Digital Citizenship</b></p> <ul style="list-style-type: none"> <li>• Understand importance of Internet safety and maintaining privacy online.</li> <li>• Identify “digital footprint”</li> <li>• Evaluate websites for accuracy, authenticity, bias.</li> <li>• Use technology ethically                             <ul style="list-style-type: none"> <li>○ Copyright, Fair Use, creative commons, online plagiarism</li> </ul> </li> </ul>	<p>1 Week</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> <li>• Rephrase explanations</li> <li>• Preferential seating</li> <li>• Allow extended time</li> <li>• Provide peer assistor</li> </ul> <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> <li>• Allow independent study</li> <li>• Provide extension activities</li> <li>• Allow students to act as peer assistors</li> </ul>	<p><i>CRP1, CRP2, CRP7, 8.1.8.D.1, 8.1.8.D.2, 8.1.8.D.3, 8.1.8.D.4, 8.1.8.D.5</i></p>	<p><i>Formative Assessment:</i>                      Observation and questioning.                      Surveys.                      Small group discussions.                      Exit tickets.</p> <p><i>Summative Assessment:</i>                      Final Unit Project:                      Common Sense Media- Digital Compass.                      Successful completion of online lessons and activities.</p>

Unit Topic	Time Allocated	Differentiating Instruction for Students with Disabilities, Students at Risk of School Failure, English Language Learners, & Gifted & Talented Students	Standards	Assessments
<p><b>Computer Science / Computer Programming (Coding)</b></p> <ul style="list-style-type: none"> <li>• Identify ways computers are used that have an impact on society and careers</li> <li>• Identify basics of how the Internet works</li> <li>• Write computer program to perform a specific task</li> <li>• Debug a computer program and resolve errors</li> <li>• Use loops and conditionals in code</li> <li>• Write basic JavaScript code</li> </ul>	<p>1 Week</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> <li>• One-on-one modeling and demonstration</li> <li>• Preferential seating</li> <li>• Allow participation at any level</li> <li>• Provide peer assistor</li> </ul> <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> <li>• Allow students to act as peer assistors</li> <li>• Provide extension activities</li> <li>• Allow independent study to expand on topic</li> </ul>	<p><i>CRP2, CRP6, CRP11, 8.1.8.A.1, 8.2.8.E.2, 8.2.8.E.3, 8.2.8.E.4</i></p>	<p><i>Formative Assessment:</i>                      Observation and questioning.                      Think-Pair-Share.                      Brainstorming solutions.                      Demonstration to classmates.</p> <p><i>Summative Assessment:</i>                      Final Unit Project:                      Code.org Express Course.                      Successful completion of assigned levels and lessons.</p>