

Maywood Public Schools

**Technology
Education**

Grade 5

Computer Tech 5

I. Introduction/Overview/Philosophy

Building on the skills learned in Grade 4, students will be exposed to more advanced application software functions of spreadsheets, drawing, word processing, and presentation. 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. Keyboarding will be reviewed and emphasized. Students will continue to become familiar with computer coding. Digital citizenship will continue to be emphasized as well.

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
 - B. Master touch typing
 - 1. Review 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 Basics
 - i. Select and deselect text
 - ii. Formatting font
 - iii. Adjusting margins and page orientation
 - iv. Refine proofreading skills
 - v. Edit text while proofreading
 - vi. Manipulate images
 - vii. Find and replace text
 - viii. Paragraph formats
 - 2. Intermediate word processing 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
 - B. Drawing
 - 1. Review basics
 - i. Create a drawing using tools

- ii. Format your drawing
 - iii. Select and manipulate objects
 - iv. Move, resize, and rotate objects
 - v. Arrange objects
 - vi. Use objects in documents
 - 2. Intermediate drawing skills
 - i. Use layering
 - ii. Freehand tools
 - iii. Group objects
 - iv. Duplicate objects
 - C. Spreadsheets
 - 1. Review basics
 - i. Purpose of a spreadsheet
 - ii. Create a new spreadsheet
 - iii. Enter data
 - 1. Edit cell contents
 - 2. Preview and print a spreadsheet
 - 3. Format widths, alignments, fonts
 - 4. Use simple formulas to perform calculations
 - 5. Copy formulas
 - 6. Create simple graphs/charts
 - 2. Intermediate spreadsheet skills
 - i. Use sort to organize spreadsheet data
 - ii. Use intermediate formulas and functions to perform calculations
 - iii. Design graphs/charts from spreadsheet data
 - D. Presentation
 - 1. Review basics
 - i. Create a new presentation
 - ii. Enter and edit text
 - iii. Add graphics to a slide
 - iv. Add transitions
 - 2. Intermediate presentation skills
 - i. Incorporate spreadsheet in presentation
 - ii. Add animations
 - iii. Create speaker notes
 - iv. Present orally to group
- III. Digital Citizenship
- A. Internet Safety
 - 1. Understand importance of Internet safety and maintaining privacy online
 - 2. Understand cyberbullying and how to combat and prevent its occurrence
 - B. Website Evaluation
 - 1. Evaluate websites for accuracy and authenticity
- 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. Identify basics of how a computer works
 - B. Computer Programming (Coding)
 - 1. Write a simple computer program to perform a specific task
 - 2. Debug a computer program to identify and solve errors
 - 3. Use loops in code

Student Outcomes:

After successfully completing this course, the student will:

- key entire alphabet and punctuation marks using proper keyboarding technique.
- key paragraphs with capital letters, indentation and correct punctuation, using the proper fingers and eyes on the copy.
- use a word processing program to create and edit documents.
- format text into multiple columns in a document and use tables.
- properly apply custom formatting to documents.
- create and format tables.
- create drawings using basic and freehand tools.
- use layering, ordering, and grouping in drawings.
- enter and edit data into a spreadsheet and use formulas and functions.
- sort spreadsheet data.
- create various graphs/charts in spreadsheets.
- change graph/chart types in spreadsheets.
- combine the use of word processing and spreadsheets into a presentation.
- use presentation animations.
- present information orally using technology as a presentation tool.
- apply Internet safety rules focusing on cyberbullying to identify and prevent it.
- evaluate websites for accuracy and bias.
- identify basics of how computers work.
- code and debug a simple program to complete a specific task.
- build critical-thinking and decision-making skills relating to computer usage.

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 COLLABORATE AND TO CREATE AND COMMUNICATE KNOWLEDGE.**

8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.

8.1.5.A.3 Use a graphic organizer to organize information about problem or issue.

8.1.5.A.4 Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data.

8.1.5.B.1 Collaborative to produce a digital story about a significant local event or issue based on first-person interviews.

8.1.5.D.2 Analyze the resource citations in online materials for proper use.

8.1.5.D.3 Demonstrate an understanding of the need to practice cyber safety, cyber security, and cyber ethics when using technologies and social media.

8.1.5.D.4 Understand digital citizenship and demonstrate an understanding of the personal consequences of inappropriate use of technology and social media.

8.1.5.E.1 Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

8.1.5.F.1 Apply digital tools to collect, organize, and analyze data that support a scientific finding.

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.

8.2.5.E.1 Identify how computer programming impacts our everyday lives.

8.2.5.E.2 Demonstrate an understanding of how a computer takes input of data, processes and stores the data through a series of commands, and outputs information.

8.2.5.E.3 Using a simple, visual programming language, create a program using loops, events and procedures to generate specific output.

8.2.5.E.4 Use appropriate terms in conversation (e.g., algorithm, program, debug, loop, events, procedures, memory, storage, processing, software, coding, procedure, and data).

III. Proficiency Levels

This is a cycle course for Grade 5.

IV. Methods of Assessment

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

V. Grouping

This is a required Grade 5 cycle course.

VI. Articulation/Scope & Sequence/Time Frame

Course length is one quarter.

VII. Resources

Resources include but are not limited to:

- *Using Google Docs in the Classroom Grade 4-5* by Steve Butz by Teacher Created Resources
- Common Sense Media: <https://www.commonsensemedia.org/educators/scope-and-sequenceat>
<https://www.commonsensemedia.org/>
- BrainPop at <http://www.brainpop.com/>
- Netsmartz Workshop: Tweens at <http://www.nsteens.org/>
- K-5 Technology Lesson Plans <http://oakdome.com/k5/>
- *32 Quick & Fun Content Area Computer Activities* by Lynn Van Gorp by Shell Education 2006
- *Typing Time Workbook* Thomson/South-Western Publishing Company Jack P. Hoggatt, Ed.D and Jon A. Shank, Ed.D 2003
- <https://www.typingclub.com/>
- <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://edtechintegrated.com/interactive-ed-digital-gaming-andor-simulation/scratch-games-created-by-rfbms-students/>
- <http://bjc.berkeley.edu/>
- <http://snap.berkeley.edu/>
- Teacher-created handouts for projects

VIII. Suggested Activities

Integrate Internet research into formulating and designing projects for 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.5.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly.

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>Computer Operations/Touch Typing</p> <ul style="list-style-type: none"> • Access, save to, and retrieve documents from servers and online drives • Organize server and online drives • Touch typing technique review • Improve typing speed and accuracy <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"> • Rephrase directions, questions, explanations • One on one modeling and demonstration of techniques and skills • Modify assignments as needed <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> • Provide extension activities • Allow students to act as peer “assistors” for their classmates 	<p><i>Standards:</i> CRP11, 8.1.5.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/submitting final products demonstrated through each unit project. Demonstration of server/drive organization. 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>Computer Applications - Word Processing</p> <ul style="list-style-type: none"> • Review of basics <ul style="list-style-type: none"> ○ Formatting and manipulating text and images ○ Document and paragraph formats • Formatting <ul style="list-style-type: none"> ○ Bulleted / numbered lists ○ Format text in columns ○ Create and format tables 	<p>2 Weeks</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> • Rephrase directions, questions, explanations • Provide hard copies of direction sheets and project rubrics • Allow extended time to complete project <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> • Build on students' intrinsic interests and motivators • Scale project objectives to more challenging outcomes 	<p><i>CRP2, CRP4, CRP6, CRP11, 8.1.5.A.1, 8.1.5.A.2</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: Restaurant Menu: Design and create a professional-looking menu for a restaurant. OR Comic Strip: Design and create a 6-pane comic strip about a technology issue. 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>Computer Applications – Drawing</p> <ul style="list-style-type: none"> • Review of basics <ul style="list-style-type: none"> ○ Create and format drawing using tools ○ Manipulate and arrange objects • Use layering • Draw using freehand tools • Duplicating and grouping of objects 	<p>1 Week</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> • Modeling and demonstration of techniques one-on-one • Allow participation at any level • Provide positive feedback of creativity <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> • Allow for student choice • Scale project to more challenging outcome 	<p>CRP6, CRP11, 8.1.5.A.1, 8.1.5.A.3</p>	<p><i>Formative Assessment:</i> Observation and questioning. Quick draw. Small group demonstrations.</p> <p><i>Summative Assessment:</i> Final unit project: Postcard Project: Design and draw a landscape from a vacation spot you want to visit. Include creative elements to look like a postcard. Assessed using rubric.</p>
<p>Computer Applications – Spreadsheets</p> <ul style="list-style-type: none"> • Review of basics <ul style="list-style-type: none"> ○ Create and edit spreadsheet ○ Format cells and data ○ Use of simple formulas • Use sort to organize and manipulate data • Use intermediate formulas and functions • Design graphs / charts 	<p>2 Weeks</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> • Modify assignments to simplify difficult tasks and terminology • Assign a buddy to provide support and assistance • Accept participation at limited levels <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> • Provide extension activities • Allow student to act as peer assistors • Scale project to more challenging outcomes 	<p>CRP11, 8.1.5.A.1, 8.1.5.A.4</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: Excellent Elements: Design and create a spreadsheet to display data about 15 elements from the periodic table. Include formulas and a graph. 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>Computer Applications – Presentations</p> <ul style="list-style-type: none"> • Review of basics <ul style="list-style-type: none"> ○ Enter and edit text and graphics on slides ○ Use transitions • Incorporate spreadsheet in presentation • Use animations • Create and use speaker notes • Present to group 	<p>2 Weeks</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> • Allow errors in writing and speaking • Assign buddy and supportive group • Allow participation at any level <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> • Build on students’ intrinsic interests • Allow independent study if requested • Provide opportunities for extension of project 	<p><i>CRP2, CRP4, CRP6, CRP11, CRP12, 8.1.5.A.1, 8.1.5.B.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: Our Great States: Design and create a presentation about 3 states, chosen from 3 areas of US map. Conduct research online to include in presentation. Present to class. Assessed using rubric.</p>
<p>Digital Citizenship</p> <ul style="list-style-type: none"> • Understand importance of Internet safety and maintaining privacy online. • Understand cyberbullying and how to combat its occurrence. • Evaluate websites for accuracy and authenticity. 	<p>1 Week</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> • Rephrase explanations • Preferential seating • Allow extended time • Provide peer assistor <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> • Allow independent study • Provide extension activities • Allow students to act as peer assistors 	<p><i>CRP1, 8.1.5.D.4</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: Interland - “Be Internet Awesome” Successful completion of lessons and online 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>Computer Science / Computer Programming (Coding)</p> <ul style="list-style-type: none"> • Identify ways computers are used that have an impact on society and careers • Identify basics of how computers work • Write simple program to perform a task • Debug a computer program • Use loops in code 	<p>1 Week</p>	<p><i>For Support:</i></p> <ul style="list-style-type: none"> • One-on-one modeling and demonstration • Preferential seating • Allow participation at any level • Provide peer assistor <p><i>For Enhancement:</i></p> <ul style="list-style-type: none"> • Allow students to act as peer assistors • Provide extension activities • Allow independent study to expand on topic 	<p><i>CRP6,</i> <i>8.1.5.A.1,</i> <i>8.2.5.E.1,</i> <i>8.2.5.E.2,</i> <i>8.2.5.E.3,</i> <i>8.2.5.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 Course F. Successful completion of assigned levels and lessons.</p>