COURSE TITLE

Computer Tech 6

LENGTH

One Quarter
Grade 6

DEPARTMENT

Computer Department
Barbara O'Donnell, Supervisor

SCHOOL

Pierrepont Elementary School

DATE

Fall 2016

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 database, 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

Student Outcomes:
By the end of Grade 6 the students will show their understanding of software systems by being able to:

- create word processing documents with tables, lists, and links
- create word processing documents with embedded spreadsheets
- create and use a database
- sort records in a database
- use searching techniques in a database
- edit database records
- enter and edit data into a spreadsheet
- create formulas or use calculation functions to do computations with the data in a spreadsheet
- use data to create appropriate charts
- create a presentation containing text, graphics, sound, and audio
- create presentations using video and digital equipment
- code and debug a computer program to complete a specific task
- use video editing software to cut, edit and assemble short scenes
- apply cybersafety rules

III. 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. Review
    A. Word processing
        1. Create and edit tables

2. Format and use columns

B. Spreadsheets
   1. Using the function containing calculations and text
   2. Using sort to organize a spreadsheet

C. Database
   1. Modifying database fields and records
   2. Modifying and formatting charts
   3. Sorting records
   4. Analyzing database information
   5. Creating graphs

D. Presentations
   1. Researching information
   2. Presenting information orally

II. Word Processing
   A. Creating newsletters or other various documents
   B. Create hyperlinks in a document

III. Integrating Word Processing and Spreadsheets
   A. Working with multiple files
   B. Copying data
      1. between files
      2. between word processor documents
      3. between spreadsheets
      4. between spreadsheets and word processor documents
      5. copying a chart into a word processor file

IV. Internet Safety
   A. Completing cybersafety unit
   B. Applying online safety rules

V. Introduction to Video
   A. Editing video
   B. Assembling short scenes

VI. Computer Programming/Coding
   A. Identify ways computers are used that have an impact across the range of human activity and within different careers where they are used.
   B. Write computer code to perform a specific task
   C. Debug a computer program to identify and solve errors

New Jersey Student Learning Standards

TECHNOLOGY

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.

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.

> E. Computational Thinking: Programming: *Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.*

IV. Proficiency Levels

This is a cycle course for Grade 6.

V. 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.

VI. Grouping

This is a required Grade 6 cycle course.

VII. Articulation/Scope & Sequence/Time Frame

Course length is one quarter.

VIII. 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/educators/scope-and-sequenceat https://www.commonsensemedia.org/
- BrainPop at http://www.brainpop.com/
- 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://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

IX. Methodologies

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

X. Suggested Activities

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

XI. Interdisciplinary Connections

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.

XII. Differentiating Instruction for Students with Special Needs: Students with Disabilities, 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.

Examples of Strategies and Practices that Support:

Students with Disabilities

- Use of visual and multi-sensory formats
- Use of assisted technology
- Use of prompts
- Modification of content and student products
- Testing accommodations
- Authentic assessments

English Language Learners

- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling

- Pairing students with beginning English language skills with students who have more advanced English language skills
- Scaffolding
    - word walls
    - sentence frames
    - think-pair-share
    - cooperative learning groups

Gifted & Talented Students

- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven
- Real-world problems and scenarios

XIII. Professional Development

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

Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**
Review Presentations • Add transitions • Research and present orally	Review Word Processing • Create and edit tables • Format columns	Introduce New Word Processing Concepts • Format in MLA style • Format bibliography • Design flyers with graphics	Review Spreadsheets • Create formulas • Sort to organize	Introduce New Spreadsheet Concepts • Modify and format charts • Additional formula/ • Functions
Week 6	**Week 7**	**Week 8**	**Week 9**	**Comments**
Review Database • Modify fields • Create charts • New Database Concepts • Use date and time fields Computer Programming • Code and test programs • Design and write code • Debug programs	Internet Safety • Review dangers of social networking sites • Group cybersafety activities Computer Programming • Code and test programs • Design and write code • Debug programs	iMovie • Use of video camera • Downloading and editing clips • Creating a finished product	Culminating activity incorporating all concepts learned.	Various activity-based projects will be incorporated into classroom learning as skills are taught. Alignment to various core curriculum content areas such as language arts, math, and science will be emphasized.