



Central York School District

Computer Applications and Web 2.0 Tools

Course Overview

Grade Level: 9-12

Course Description:

In this course, students will learn and apply basic Microsoft Word features (formatting, writing, and editing tools), Microsoft Excel spreadsheet features (formulas, charts), and Microsoft PowerPoint (presentations) features. This course will also explore exciting Web 2.0 tools, as well as learning proper "touch typing" techniques. The class evolves into a "hybrid self-paced" structure where all weekly assignments are due at the end of the week, with each lesson being taught via screencast, which facilitates more student-to-teacher interaction/assistance.

Course Big Ideas:

- Advances in computing technology continually transform how people learn, work, communicate, and solve problems.
- Computer hardware, storage, and input technologies determine how effectively a computer system performs specific tasks.
- Selecting appropriate technology tools and devices requires analyzing needs, efficiency, and the desired outcome.
- Innovators and technology leaders have shaped the development and accessibility of modern computing systems.
- Touch typing and proper ergonomic practices improve speed, accuracy, and long-term efficiency when using computers.
- Standardized input methods and keyboard layouts allow users to interact with digital systems consistently and effectively.
- Effective document creation depends on applying formatting tools and features to communicate information clearly and professionally.
- Spreadsheets allow users to organize, analyze, and interpret data through formulas, functions, and visualizations.
- Digital tools enable users to create, manage, and present information in ways that support academic and workplace productivity.
- Emerging technologies continue to expand opportunities for collaboration, creativity, and innovation in education, business, and everyday life.

Course Essential Questions:

- How has the evolution of computing technology changed the way people live, learn, and work?
- How do hardware, storage, and input technologies affect the performance and capabilities of computer systems?
- How can selecting the right digital tools improve productivity and task efficiency?
- Why are proper typing techniques and ergonomic practices important for effective computer use?
- How can digital tools be used to organize, analyze, and communicate information effectively?
- How do emerging technologies continue to influence education, business, and everyday life?

Course Competencies:

- Explain how the development of computing technology has influenced modern society.
- Compare early computer systems with modern computers in terms of size, speed, capabilities, and limitations.
- Identify common computer hardware components and describe their functions.
- Differentiate between hardware and software and explain their roles in a computer system.
- Select appropriate input devices and storage technologies based on defined needs or tasks.

- Explain how influential technology leaders contributed to the growth and accessibility of computing.
- Demonstrate proper typing techniques, including correct finger placement and posture.
- Apply touch typing strategies to improve typing speed and accuracy.
- Measure and track typing performance using words-per-minute (WPM) and accuracy metrics.
- Create and format professional documents using word processing software features.
- Apply document formatting tools such as tables, tabs, text boxes, and alignment to organize information effectively.
- Use file management techniques to save, retrieve, rename, and organize digital files.
- Format spreadsheet data using alignment, fonts, borders, colors, and number/date formatting.
- Apply formulas and mathematical operations using cell references to perform calculations in spreadsheets.
- Use spreadsheet functions to analyze and summarize data.
- Organize and manipulate spreadsheet data using sorting, tables, Autofill, and row or column adjustments.
- Create charts and visual representations to interpret and communicate spreadsheet data.
- Design and deliver digital presentations using formatting, graphics, hyperlinks, and animation to communicate ideas effectively.

Course Assessments:

- B.E. Publishing in-class assignments
- Quizzes
- Tests



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Unit 1: Introduction to the History of Computers

Time: 2 days

Standards:

PA Academic Standards for Business, Computer and Information Technology:

- 15.4.12.A Apply the creative and productive use of emerging technologies for educational and personal success.
- 15.4.12.C Develop criteria for analyzing hardware options to meet defined needs.
- 15.4.12.D Evaluate emerging input technologies.

National Standards for Business Education:

- Identify devices appropriate for specific tasks.
- Identify the components of devices.
- Explain the purpose, operation, and care of devices and components.
- Identify storage options.
- Compare and contrast various storage devices (e.g., local, removable, remote, cloud).
- Select appropriate input technology to optimize performance.
- Explain how information technologies meet human needs and affect the quality of life.

Know:

- The names of the first computing systems, along with their size and capabilities.
- The difference between input and output devices.
- The difference between hardware and software.
- The difference between RAM and ROM.
- The importance Steve Jobs and Bill Gates had on the computing world.

Understanding/Key Learning:

- The development of computing technology—from early mechanical devices to modern digital systems—continually transforms how people learn, work, and communicate.
- Innovations in hardware components, storage, and input/output technologies determine a computer's performance and functionality.
- Selecting appropriate hardware, storage, and input devices requires analyzing needs, tasks, and efficiency.
- Individuals such as Steve Jobs and Bill Gates played pivotal roles in advancing computer accessibility, usability, and global adoption.
- Emerging technologies not only improve productivity and communication but also reshape social, educational, and economic opportunities.

Do:

- Compare early computers' size, capabilities, and limitations with modern systems.
- Identify devices, distinguish hardware from software, and explain their purpose and care.
- Determine which input devices and storage options best meet defined tasks or needs.
- Explain how contributions from visionaries like Steve Jobs and Bill Gates shaped computing and everyday life.
- Discuss how emerging technologies improve educational, personal, and business outcomes.

Unit Essential Questions:

- How have computers evolved over time, and what impact has this evolution had on society, work, and daily life?
- How do hardware, software, and input/output technologies work together to meet human and business needs?
- What role do innovators and emerging technologies play in shaping the future of computing and information technology?

Lesson Essential Questions:

- How has the computer evolved in the past 50 years?
- What are input devices?
- What are output devices?
- What is the difference between hardware and software?
- What is the ENIAC?
- How was Steve Jobs and Bill Gates influential to the evolution of computers?

Materials/Resources:

iPad, Introduction to the History of Computers webquest

Vocabulary:

Silicon chips	ENIAC	Windows OS	Apple OS
RAM	ROM	Processor	Memory
Memory	Input device	Output device	Central Processing Unit (CPU)
Supercomputer	Desktop computer	Mobile computer	System software
Operating software	Kilobyte	Megabyte	Gigabyte
Terabyte			

Assessments:

Webquest

Introduction to Computers Quiz handout



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Unit 2: Typing Simulation

Time: 6 weeks

Standards:

PA Academic Standards for Business, Computer and Information Technology:

- 15.4.12.A: Apply the creative and productive use of emerging technologies for educational and personal success.
- 15.4.12.C: Develop criteria for analyzing hardware options to meet defined needs.
- 15.4.12.D: Evaluate emerging input technologies.

National Standards for Business Education:

- Focus on developing proper keyboarding techniques, including correct finger placement and posture.
- Identify appropriate input technology for various tasks.
- Describe ergonomic issues related to input technologies.

Know:

- The definition of touch typing.
- The benefits of touch typing.
- The five techniques of proper touch typing.
- The proper home row position.
- How to calculate Words-Per-Minute (WPM).
- What a QWERTY keyboard is.

Understanding/Key Learning:

- Touch typing improves efficiency and accuracy in digital communication, enhancing both educational and professional productivity.
- Proper finger placement, posture, and home row positioning reduce ergonomic risks and support long-term computer use.
- Different input technologies are designed to meet specific tasks, and selecting the appropriate device optimizes performance.
- Words-Per-Minute (WPM) is a measurable way to track typing skill development and improvement over time.
- The QWERTY keyboard layout and touch typing techniques provide a standardized method for interacting with computers effectively.

Do:

- Practice proper touch typing techniques by maintaining correct finger placement, posture, and home row positioning.
- Use a QWERTY keyboard efficiently to increase speed and accuracy in typing tasks.
- Measure and track typing progress by calculating Words-Per-Minute (WPM) and monitoring improvement over time.
- Select the most appropriate input technology for different tasks to optimize performance and efficiency.
- Apply ergonomic principles while typing to reduce strain and maintain long-term comfort during computer use.

Unit Essential Questions:

- How does mastering touch typing improve productivity in both educational and professional settings?
- Why is proper finger placement, posture, and home row technique important for long-term computer use?
- How do different input technologies support various tasks, and how do we choose the right one?
- In what ways can typing speed and accuracy be measured and improved over time?
- How does understanding keyboard layout and touch typing techniques contribute to effective digital communication?

Lesson Essential Questions:

- What are the five key techniques of proper touch typing, and how do they affect typing efficiency?
- How does maintaining proper posture and ergonomics while typing prevent strain and injury?
- How is Words-Per-Minute (WPM) calculated, and why is it a useful measure of typing skill?
- How does using a QWERTY keyboard efficiently support accurate and productive typing?
- What strategies can be used to select the most appropriate input technology for a given task?

Materials/Resources:

iPad, projector, www.Typing.com

Vocabulary:

Touch typing

Words-per-minute
(WPM)

QWERTY keyboard

Assessments:

www.Typing.com simulation



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Computer Applications and Web 2.0 Tools

Grade Level: 9-12

Unit 3: Microsoft Word

Time: 8 weeks

Standards:

PA Academic Standards for Business, Computer and Information Technology:

- 15.4.12.A Apply the creative and productive use of emerging technologies for educational and personal success.
- 15.4.12.C Develop criteria for analyzing hardware options to meet defined needs.
- 15.4.12.D Evaluate emerging input technologies.

National Standards for Business Education:

- Use technology to achieve academic success and lifelong learning.
- Identify and use applications appropriate for specific tasks to improve academic achievement across the curriculum.
- Use collaborative application tools to support learning.
- Select appropriate input technology to optimize performance.
- Apply a variety of input technologies to maximize productivity.
- Use a variety of input technologies to optimize academic and workplace performance.
- Create media using a variety of input technologies.

Know:

- How to use the most common features from the home ribbon.
- Vocabulary associated with Microsoft Word and its features.
- How to create documents for varying forms of communication- newsletters, letters, websites.
- How to appropriately conduct office communication, e.g., written, verbal, virtual.

Understanding/Key Learning:

- Mastering document formatting and input technologies enhances productivity and professional communication.
- Proper use of Word features, such as tables, tabs, text boxes, and ribbons, enables efficient creation and organization of complex documents.
- Choosing appropriate tools and input technologies allows tasks to be completed more accurately and effectively.
- Applying creative and collaborative features in documents supports both academic and workplace success.
- Understanding and following standard formatting conventions ensures documents are professional, readable, and suitable for various purposes.

Do:

- Use Word features like Home ribbon tools, Find and Replace, Show/Hide, tabs, and margins to format documents efficiently.
- Create and manipulate tables by inserting/deleting rows, merging cells, sorting text, using formulas, and formatting text direction.
- Design professional documents, including newsletters, business letterheads, and block-format letters, using

text boxes, columns, and graphics.

- Apply advanced formatting such as wrapping text around images, justifying text, and grouping objects for polished document layouts.
- Integrate input technologies effectively to maximize productivity, including hyperlinks, drawing tools, and collaborative editing features.

Unit Essential Questions:

- How do the tools and features in Word improve document efficiency, organization, and presentation?
- Why is it important to select appropriate input technologies for different academic and professional tasks?
- How does proper document formatting influence readability, professionalism, and communication?
- In what ways can creative and collaborative features enhance learning and workplace productivity?
- How can understanding Word features and input technologies support lifelong learning and career readiness?

Lesson Essential Questions:

- What are the most effective ways to use the Home ribbon tools for document formatting?
- How do you create and format tables to organize and present data clearly?
- What techniques ensure professional and visually appealing business letters or newsletters?
- How do advanced formatting features, like wrapping text or grouping objects, improve document presentation?
- How can hyperlinks, drawing tools, and other input technologies be used to enhance academic or professional documents?

Materials/Resources:

Laptop, projector, B.E Publishing handout, teacher-created screencast videos

Vocabulary:

Ribbon	Formatting	Margins	Textbox
Bullets	Table	Wrap text	Letterhead
Block letter format	Business letter format	Row	Formula
Text direction	Hyperlink	Newsletter	

Assessments:

B.E Publishing document assignments, quizzes, tests



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Computer Applications and Web 2.0 Tools

Grade Level: 9-12

Unit 4: Microsoft Excel

Time: 8 weeks

Standards:

PA Academic Standards for Business, Computer and Information Technology:

- 15.4.12.A Apply the creative and productive use of emerging technologies for educational and personal success.
- 15.4.12.C Develop criteria for analyzing hardware options to meet defined needs.
- 15.4.12.D Evaluate emerging input technologies.

National Standards for Business Education:

- Use technology to achieve academic success and lifelong learning.
- Identify and use applications appropriate for specific tasks to improve academic achievement across the curriculum.
- Use collaborative application tools to support learning.
- Select appropriate input technology to optimize performance.
- Apply a variety of input technologies to maximize productivity.
- Use a variety of input technologies to optimize academic and workplace performance.
- Create media using a variety of input technologies.

Know:

- How to use the most common features from the home ribbon.
- Vocabulary associated with Microsoft Excel and its features.
- How to create spreadsheets.
- How to use spreadsheets to create data charts and enhancements.

Understanding/Key Learning:

- Formatting and structuring spreadsheet data to improve clarity through alignment, fonts, cell sizing, number/date formats, colors, and borders.
- Managing files and page layout to produce professional spreadsheet documents through saving, retrieving, renaming, and adjusting print settings.
- Applying formulas and mathematical operations to perform accurate calculations using cell references and the proper order of operations.
- Using built-in functions for data analysis to summarize, evaluate, and interpret numerical information.
- Organizing and manipulating spreadsheet data through sorting, Autofill, table formatting, and row/column management.
- Visualizing and interpreting data through chart creation, enhancement, and conditional logic in Microsoft Excel.

Do:

- Format and structure spreadsheet data using alignment, fonts, sizing, number/date formats, colors, and borders to improve readability.
- Manage files and page layout by saving, retrieving, renaming files, and adjusting print settings for professional

output.

- Apply formulas and mathematical operations to perform calculations using cell references and correct order of operations in Microsoft Excel.
- Use built-in functions to summarize and analyze data, including totals, averages, counts, and statistical measures.
- Organize and manipulate spreadsheet information by sorting data, using Autofill, formatting tables, and adjusting rows and columns.
- Create and enhance charts to visually represent data and support interpretation and decision-making.

Unit Essential Questions:

- How does effective formatting improve the clarity and usability of spreadsheet data in Microsoft Excel?
- How can formulas and functions be used to analyze data and solve real-world problems?
- What strategies make spreadsheet data easier to organize, manage, and interpret?
- How does visualizing data with charts influence understanding and decision-making?
- Why is proper file management and page setup important when creating professional spreadsheet documents?
- How can spreadsheets in Microsoft Excel be used to model situations and support informed decision-making?

Lesson Essential Questions:

- How can formatting tools be used to make spreadsheet information clearer and easier to read in Microsoft Excel?
- How do formulas and functions help perform accurate calculations and analyze data?
- How can sorting and organizing data improve efficiency and understanding?
- How do charts help communicate information and reveal patterns in data?

Materials/Resources:

Laptop, projector, B.E Publishing handout, teacher-created screencast videos

Vocabulary:

Cell	Spreadsheet	Column	Row
Active cell	Cell address	Name box	Formula bar
Block of cells	Data	Range	Formula
Function	Autofill	Table	Chart
Page	Margin	Text wrap	Median
Mode	Condition	Future value	

Assessments:

B.E Publishing document assignments, quizzes, tests



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Grade Level: 9-12

Unit 5: Microsoft PowerPoint

Time: 2 weeks

Standards:

Academic Standards for Business, Computer and Information Technology:

- 15.4.12.A Apply the creative and productive use of emerging technologies for educational and personal success.
- 15.4.12.C Develop criteria for analyzing hardware options to meet defined needs.
- 15.4.12.D Evaluate emerging input technologies.

National Standards for Business Education:

- Use technology to achieve academic success and lifelong learning.
- Identify and use applications appropriate for specific tasks to improve academic achievement across the curriculum.
- Use collaborative application tools to support learning.
- Select appropriate input technology to optimize performance.
- Apply a variety of input technologies to maximize productivity.
- Use a variety of input technologies to optimize academic and workplace performance.
- Create media using a variety of input technologies.

Know:

- How to use the most common features from the home ribbon.
- Vocabulary associated with Microsoft PowerPoint and its features.
- How to create presentations.
- How to use spreadsheets to convey information for different purposes.

Understanding/Key Learning:

- Effective use of presentation software enhances communication and supports academic and workplace productivity.
- Selecting and applying appropriate technology tools helps users complete tasks more efficiently and professionally.
- Formatting elements such as text, colors, tables, and backgrounds improve the clarity and visual impact of information.
- Input technologies and software features allow users to create, organize, and present information in multiple ways.
- Digital presentation tools support collaboration, creativity, and the communication of ideas across academic and professional settings.

Do:

- Format text and apply bullets to organize information clearly on presentation slides.
- Modify slide appearance by changing text color, background color, and applying a custom color scheme.
- Insert and format tables to present information in an organized visual format.
- Create interactive elements by inserting hyperlinks within a presentation.

- Apply presentation features and input tools such as animated bullets, graphic backgrounds, and the arrow tool to enhance communication and visual impact.
- Insert and manipulate visual elements such as graphics and backgrounds to improve the design and effectiveness of a presentation.

Unit Essential Questions:

- What makes a digital presentation clear, organized, and visually effective?
- How do formatting and design choices impact how an audience understands information?
- How can different input technologies help users work more efficiently with digital tools?
- How can presentation software be used to share information in academic and workplace settings?
- How do design elements such as color, tables, graphics, and animation enhance communication?

Lesson Essential Questions:

- How can formatting text and bullets make information easier to read and understand?
- How do color choices affect the look and effectiveness of a presentation?
- How can tables help organize and present information clearly?
- How can hyperlinks make a presentation more interactive and useful?
- How can graphics, backgrounds, and animations improve the visual impact of a slide?

Materials/Resources:

Laptop, projector, B.E Publishing handout, screencast videos

Vocabulary:

Presentation	Slide	Bullet	Background
Table	Animation	Hyperlink	Color scheme
Arrow tool			

Assessments:

B.E Publishing documents, quizzes, and tests.