



**Middle School Technology Department
Wayne, New Jersey**

**8th Grade Computer Applications Curriculum Guide
November 2022
Revised**

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This curriculum may be modified through varying techniques, strategies, and materials as per an individual student's Individualized Educational Plan (IEP)

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November 15, 2018

Wayne Township Public Schools
Grade 8
Computer Applications Curriculum Guide - Unit 1

Content Area:	Computer Applications
Grade Level:	8th Grade
Course:	Computer Applications 8
Unit Plan Title:	Money Management
Time Frame	Weeks 1-6
Pacing Guide	Pacing is noted within the curriculum in this document

2020 New Jersey Student Learning Standards – Computer Science and Design Thinking

8.1 Computer Science

- 8.1.8.IC.1:** Compare the trade-offs associated with computing technologies that affect an individual's everyday activities and career options.
- 8.1.8.DA.1:** Organize and transform data collected using computational tools to make it usable for a specific purpose.
- 8.1.8.DA.2:** Explain the difference between how the computer stores data as bits and how the data is displayed.
- 8.1.8.DA.3:** Identify the appropriate tool to access data based on its file format.
- 8.1.8.DA.4:** Transform data to remove errors and improve the accuracy of the data for analysis.
- 8.1.8.DA.5:** Test, analyze, and refine computational models.!
- 8.1.8.AP.1:** Design and illustrate algorithms that solve complex problems using flowcharts and/or pseudocode.
- 8.1.8.AP.2:** Create clearly named variables that represent different data types and perform operations on their values.
- 8.1.8.AP.3:** Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.
- 8.1.8.AP.4:** Decompose problems and sub-problems into parts to facilitate the design, implementation, and review of programs.
- 8.1.8.AP.5:** Create procedures with parameters to organize code and make it easier to reuse.
- 8.1.8.AP.6:** Refine a solution that meets users' needs by incorporating feedback from team members and users.
- 8.1.8.AP.7:** Design programs, incorporating existing code, media, and libraries, and give attribution.
- 8.1.8.AP.8:** Systematically test and refine programs using a range of test cases and users.
- 8.1.8.AP.9:** Document programs in order to make them easier to follow, test, and debug.

2020 New Jersey Student Learning Standards – Career Readiness, Life Literacies, and Key Skills

9.1 Personal Financial Literacy

- 9.1.8.CDM.1:** Compare and contrast the use of credit cards and debit cards for specific purchases and the advantages and disadvantages of using each.
- 9.1.8.CDM.2:** Demonstrate an understanding of the terminology associated with different types of credit (e.g., credit cards, installment loans, mortgages, lines of credit) and compare and calculate the interest rates associated with each
- 9.1.8.CDM.3:** Compare and contrast loan management strategies, including interest charges and total principal repayment costs.
- 9.1.8.CDM.4:** Evaluate the application process for different types of loans (e.g., credit card, mortgage, student loans).
- 9.1.8.CP.2:** Analyze how spending habits affect one's ability to save.
- 9.1.8.CP.3:** Explain the purpose of a credit score and credit record, the factors and impact of credit scores.
- 9.1.8.EG.1:** Explain how taxes affect disposable income and the difference between net and gross income

9.1.8.EG.3: Explain the concept and forms of taxation and evaluate how local, state and federal governments use taxes to fund public activities and initiatives.

9.1.8.FI.4: Analyze the interest rates and fees associated with financial products.

9.1.8.FP.5: Determine how spending, investing, and using credit wisely contributes to financial well-being.

9.1.8.PB.4: Construct a simple personal savings and spending plan based on various sources of income and different stages of life (e.g. teenager, young adult, family).

9.1.8.PB.6: Construct a budget to save for short-term, long term, and charitable goals.

9.1.8.PB.7: Brainstorm techniques that will help decrease expenses including comparison shopping, negotiating, and day-to-day expense management.

9.2 Career Awareness, Exploration, Preparation, and Training

9.2.8.CAP.1: Identify offerings such as high school and county career and technical school courses, apprenticeships, military programs, and dual enrollment courses that support career or occupational areas of interest.

9.2.8.CAP.2: Develop a plan that includes information about career areas of interest.

9.2.8.CAP.3: Explain how career choices, educational choices, skills, economic conditions, and personal behavior affect income.

9.2.8.CAP.6: Compare the costs of postsecondary education with the potential increase in income from a career of choice.

9.2.8.CAP.7: Devise a strategy to minimize costs of postsecondary education.

9.2.8.CAP.13: Compare employee benefits when evaluating employment interests and explain the possible impact on personal finances.

9.2.8.CAP.14: Evaluate sources of income and alternative resources to accurately compare employment options

9.2.8.CAP.15: Present how the demand for certain skills, the job market, and credentials can determine an individual's earning power.

9.2.8.CAP.16: Research different ways workers/ employees improve their earning power through education and the acquisition of new knowledge and skills.

9.2.8.CAP.17: Prepare a sample resume and cover letter as part of an application process.

9.2.8.CAP.18: Explain how personal behavior, appearance, attitudes, and other choices may impact the job application process.

9.2.8.CAP.19: Relate academic achievement, as represented by high school diplomas, college degrees, and industry credentials, to employability and to potential level. There are resources to help an individual create a business plan to start or expand a business.

9.4 Life Literacies and Key Skills

9.4.8.DC.3: Describe tradeoffs between allowing information to be public (e.g., within online games) versus keeping information private and secure.

9.4.8.DC.7: Collaborate within a digital community to create a digital artifact using strategies such as crowdsourcing or digital surveys.

9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b).

9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations.

9.4.8.IML.11: Predict the personal and community impact of online and social media activities.

9.4.8.IML.12: Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.

9.4.8.TL.1: Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.

9.4.8.TL.2: Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).

9.4.8.TL.3: Select appropriate tools to organize and present information digitally.

Interdisciplinary Standards: New Jersey Learning Standards for English Language Arts Companion Standards Grades 6-8

Anchor Standards for Reading

Key Ideas and Details

NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

Progress Indicator For Reading Science and Technical Subjects

Key Ideas and Details

RST.6-8.7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

Key Ideas and Details

RST.6-8.10. By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

Unit Summary

Students will apply knowledge about and engage in the process of career awareness, exploration, and preparation in order to navigate the globally competitive work environment. They will learn how career choices relate to potential earning power and how income relates to purchasing power. Students will be made aware of how technology plays a significant role in financial planning, savings, and investing. They will learn how their spending and investing decisions impact their short and long-term financial goals.

Essential Questions

- How does career choice and education level relate to earning power?
- What type of lifestyle can be expected based upon career choice and the level of education completed?
- How do taxes and employee benefits impact disposable income?
- How does interest affect money that is borrowed?
- How does short and long-term planning/budgeting improve overall financial health?
- How will savings and investing early in life affect my lifestyle upon retirement?
- How does technology benefit the budgeting process?

Enduring Understandings

- Understand how educational achievement and career choice play a role in achieving a desired lifestyle.
- Explain how taxes and the cost of employee benefits affect the amount of disposable income.
- Understand the relationship between income and purchasing power.
- Differentiate between personal wants and needs and understand how they affect the prioritization of financial decisions.
- Connect how planning and budgeting affect overall financial well-being.
- Understand the importance of short and long-term savings and how both are crucial for financial independence.

- Understand how interest determines the amount of money a person can borrow.

In this unit plan, the following 21st Century themes and skills are addressed.

21 st Century Themes		21 st Century Skills	
X	Global Awareness	X	Creativity and Innovation
	Environmental Literacy	X	Critical Thinking and Problem Solving
	Health Literacy	X	Communication
	Civic Literacy	X	Collaboration
X	Financial, Economic, Business, and Entrepreneurial Literacy		
Student Learning Targets		Learning Activities	
<p><i>Week 1</i> Students will be able to navigate a spreadsheet Student will be able to define spreadsheet key terms.</p> <p><i>Week 2-4</i> Students will understand how career choices, education choices, skills, entrepreneurship, and economic conditions affect income by researching careers. Students will demonstrate an understanding of earning power and how it relates to spending decisions, and lifestyle by completing a budget using spreadsheets. Students will differentiate between taxable and nontaxable income by calculating payroll deductions, taxes and net income using spreadsheets.</p> <p><i>Week 5-6</i> Students will distinguish between income and investment growth and differentiate among various investment options by participating in a stock market simulation. Using technology, students will calculate returns on short- and long-term investments (e.g., stocks vs. bonds) and assess the impact of losses associated with different types of financial risks. Students will identify how interest rates add to the costs of goods and services by calculating interest using spreadsheets.</p>		<p>Week 1 Defining spreadsheet key terms</p> <ul style="list-style-type: none"> • formulas • minimum • maximum • averages <p>Week 2-4 Career Exploration</p> <ul style="list-style-type: none"> • Defining careers and researching career earning power online • Identify what, if any, specific training or requirements are needed for a specific job <p>Defining gross pay, net pay, taxes and deductions Students will calculate different payroll costs and deductions in spreadsheets</p> <p>Week 5-6 Defining interest rates, savings, mortgage and investing Calculating a household budget with multiple types of expenses</p> <ul style="list-style-type: none"> • Fixed vs. Variable Costs • Mortgage Payments • Auto Loans • Property Taxes <p>Students will integrate a graph of the expenses into the summary of their expenses</p>	

Students will understand the power of interest and how it impacts savings and investing by calculating interest on bonds.

Assessments

B = Benchmark S = Summative F = Formative A/PB=Alternative

Benchmark Assessment:

Week 1: Students will be asked to demonstrate their current spreadsheet knowledge

Week 6: Students will demonstrate their growth on spreadsheet knowledge

Formative Assessment:

Week 2-5: Introduction to spreadsheets and formulas

Teacher will introduce and examine students ability to apply specific formulas within a spreadsheet

Summative Assessment:

Week 5: Introduction to Spreadsheets

Teacher checklist from rubric of demonstration of application of formulas to calculate different household costs

Alternative/Performance Based Assessment

Students will view stock prices of multiple companies and determine the performance of an investment

Integrated accommodations and modifications for the following students:

504

Gifted and Talented

At Risk

ELL

Special Education

[Differentiation Strategies for 504 Students: Computer Applications](#)

[Differentiation Strategies for G&T Students: Computer Applications](#)

[Differentiation Strategies for At Risk Students: Computer Applications](#)

[Differentiation Strategies for ELL Students: Computer Applications](#)

[Differentiation Strategies for Special Education Students: Computer Applications](#)

Resources

- Spreadsheet Applications
- Google Finance
- Yahoo Finance
- [New York Stock Exchange](#)
- Stock Market Game (<http://www.howthemarketworks.com/>)
- FINRA (<http://www.finra.org/industry/trace/corporate-bond-data>)
- www.w3schools.com
- www.typing.com

- <https://code.org/learn>
- <https://www.tinkercad.com/lessonplans>
- <https://scratch.mit.edu/>
- <https://applieddigitalskills.withgoogle.com/s/en/home>
- <https://edu.gcfglobal.org/en/>
- <https://app.bsd.education/>
- Google Apps for Education
- Word Processing Software
- Presentation Software
- Spreadsheet Software

Wayne Township Public Schools
Grade 8
Computer Applications Curriculum Guide - Unit 2

Content Area:	Computer Applications
Grade Level:	8th Grade
Course:	Computer Applications 8
Unit Plan Title:	Multimedia Design
Time Frame	Week 7-10
Pacing Guide	Pacing is noted within the curriculum in this document
2014 New Jersey Core Curriculum Content Standards: Educational Technology	
<p>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.</p> <p style="padding-left: 40px;">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.</p>	
<p>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.</p> <p style="padding-left: 40px;">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.</p>	
New Jersey Core Curriculum Content Standards for 21st Century Life and Careers	
<u>Personal Financial Literacy</u>	
<p style="padding-left: 40px;">9.1.8.E.3 Compare and contrast product facts versus advertising claims.</p> <p style="padding-left: 40px;">9.1.8.E.8 Recognize the techniques and effects of deceptive advertising.</p>	

**Interdisciplinary Standards: New Jersey Learning Standards for English Language Arts Companion Standards
Grades 6-8**

Anchor Standards for Reading

NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

Key Ideas and Details

RST.6-8.10. By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

Unit Summary

The unit will introduce students to additional computer software. They will learn graphic design skills and gain business knowledge for real 21st century applications. They will be using advanced photo editing software that is used in the workplace today. Students will also develop an understanding of the technological design and computational thinking that is involved with programming commands and designing an easy to follow web page.

Essential Questions

- How does new technology impact printed media?
- What are the advantages and disadvantages of using color in graphic design?
- How does typeface and size add variety and emphasis to print media?
- How can computer programming be used in design and engineering?

Enduring Understandings

- Print media is still used today and continues to be developed with new technologies.
- Careers in graphic design are numerous and constantly evolving.
- Programming can be used to foster creativity, reasoning, and problem solving.
- Programming uses logic to turn ideas into a language a computer can interpret and display.

In this unit plan, the following 21st Century themes and skills are addressed.

21st Century Themes		21st Century Skills	
<input checked="" type="checkbox"/>	Global Awareness	<input checked="" type="checkbox"/>	Creativity and Innovation
<input type="checkbox"/>	Environmental Literacy	<input checked="" type="checkbox"/>	Critical Thinking and Problem Solving
<input type="checkbox"/>	Health Literacy	<input checked="" type="checkbox"/>	Communication
<input type="checkbox"/>	Civic Literacy	<input checked="" type="checkbox"/>	Collaboration
<input checked="" type="checkbox"/>	Financial, Economic, Business, and Entrepreneurial Literacy		
Student Learning Targets		Learning Activities	

Week 7-8
 Students will know that there are different programming languages
 Students will identify basic code of a web page

Week 9-10
 The student will explain the concept and purpose of media
 The student will explain the principles of preparing a print layout
 Students will be able to use universal tools of photo editing software

Week 7-8
 Introduction to programming and languages
 Defining programming and multiple coding languages
 Perform basic coding commands
 Students will read technical programming texts and apply coding proficiently.

Week 9-10
 Introduction to graphic design
 Navigating through photo editing software
 Performing basic tasks using the tools within the software

Assessments

B = Benchmark S = Summative F = Formative A/PB=Alternative

Benchmark Assessment:

Week 7: Students will be asked to demonstrate their current programming knowledge

Formative Assessment:

Week 7: Introduction to Programming

Teacher will introduce and examine students ability to apply specific programming commands on a web page

Week 9: Introduction to Graphic Design

Teacher will introduce and examine students ability to apply specific photo editing skills

Summative Assessment:

Week 8: Introduction to Programming

Teacher checklist from rubric of demonstration of ability to build a basic web page

Week 10: Introduction to Graphic Design

Teacher checklist from rubric of demonstration of application of photo editing tasks

Alternative/Performance Based Assessment

Students will view source code of an existing web page and be able to pull out specific programming tags

Integrated accommodations and modifications for the following students:

504

Gifted and Talented

At Risk

ELL

[Differentiation Strategies for 504 Students: Computer Applications](#)

[Differentiation Strategies for G&T Students: Computer Applications](#)

[Differentiation Strategies for At Risk Students: Computer Applications](#)

[Differentiation Strategies for ELL Students: Computer Applications](#)

[Differentiation Strategies for Special Education Students: Computer Applications](#)

Resources

- Spreadsheet Applications
- Google Finance
- Yahoo Finance
- [New York Stock Exchange](#)
- Stock Market Game (<http://www.howthemarketworks.com/>)
- FINRA (<http://www.finra.org/industry/trace/corporate-bond-data>)
- www.w3schools.com
- www.typing.com
- <https://code.org/learn>
- <https://www.tinkercad.com/lessonplans>
- <https://scratch.mit.edu/>
- <https://applieddigitalskills.withgoogle.com/s/en/home>
- <https://edu.gcfglobal.org/en/>
- Google Apps for Education
- Word Processing Software
- Presentation Software
- Spreadsheet Software