



MIDLAND PARK PUBLIC SCHOOLS
Midland Park, New Jersey
CURRICULUM

Computers

Grade 4

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Grade 4 Computers

Course Description

Grade 4 Computers will build off the skills and knowledge the students have attained during the previous years' courses. Typing practice will be embedded into instruction and time will be provided for for students to practice throughout the year. This year, students will deepen their knowledge of internet safety by identifying safe and unsafe websites. This course offers further instruction on skills and tools utilized in Word Processing and Spreadsheet Documents and engages students in online research.

Suggested Course Sequence:

Unit 1: Internet Safety (10 wks)

Unit 2: Word Processor & Spreadsheet Skills (10 wks)

Unit 3: Research Skills and MultiMedia (10 wks)

Unit 4: Coding (10 wks)

Pre-Requisites: Computers 1-3

Unit Overview

Content Area: Computers

Unit Title: Internet Safety

Grade Level: Four

Unit Summary: This unit will cover how the internet has impacted our society. It will also cover the various mediums or sources through which cyber-bullying can occur and strategies on how to prevent, identify or stop bullying on the internet.

Interdisciplinary Connections:

Social Studies

21st Century Themes and Skills:

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP3. Attend to personal health and financial well-being.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- CRP6. Demonstrate creativity and innovation.
- CRP7. Employ valid and reliable research strategies.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP10. Plan education and career paths aligned to personal goals.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Learning Targets

Standards (Content and Technology):

CPI#:	Statement:
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.

Unit Essential Question(s):

- How can we stay safe when using the internet?

Unit Enduring Understandings:

- Technology creates societal concerns regarding the practice of safe, legal, and ethical behaviors.

Unit Learning Targets/Objectives:

- Students will demonstrate personal responsibility for lifelong learning.
- Students will exhibit leadership for digital citizenship.
- Students will recognize that their words or actions hold meaning in an online forum.
- Students will sign off on a use policy and understand why it is necessary
- Students will know what actions to take to avoid and mediate cyber-bullying
- Students will understand that cyber- bullying is against the law

Evidence of Learning

Formative Assessments:

- Quiz
- Homework
- Teacher Observation

Summative/Benchmark Assessment(s):

- Group Presentation Project
- Unit Test

Resources/Materials (copy hyperlinks for digital resources):

- <http://www.stopbullying.gov/cyberbullying/what-is-it/>
- <https://www.staysafeonline.org/>
- <https://www.common sense media.org/educators/scope-and-sequence>

Modifications:

Special Education Students

- Rephrase questions, directions, and explanations
- Allow extended time to answer questions, and permit drawing, as an explanation
- Provide extended time to complete tasks

English Language Learners

- Allow partner or group work
- Rephrase questions, directions, and explanations
- Allow extended time to answer questions
- Provide extended time to complete tasks

At-Risk Students

- Consult with classroom teacher(s) for specific behavior interventions
- Provide extended time to complete tasks

Gifted and Talented Students

- Offer opportunities for extension

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Lesson Name/Topic	Lesson Objective(s)	Time frame (day(s) to complete)
Policies and Procedures	Review what is outlined and why Acceptable Use Policies are required. Sign an Acceptable Use Policy or "Digital Passport"	Week 1
Social Networking	Identify outlets for cyberbullying and analyze types of bullying. <i>[Technology or social media platforms such as Facebook, Twitter, Snapchat, Instagram, websites, gaming, emails, etc. is often where cyber bullying can occur.]</i>	Weeks 2-4
"Be More Than a Bystander!"	Develop strategies to avoid Cyber-bullying. What is your role in cyber-bullying? How can it be prevented, mediated, or stopped?	Weeks 5-7
Scenarios	Students will analyze scenarios and complete a presentation on what they identify	Weeks 7-10

Teacher Notes:

Additional Resources

Click links below to access additional resources used to design this unit:

- "Words Wound: Delete Cyberbullying and Make Kindness Go Viral" By Justin W. Patchin and Sameer Hinduja
- <http://cyberbullying.org/publications/books/>
- <http://kidshealth.org/parent/positive/talk/cyberbullying.html>
- <http://www.ncpc.org/topics/cyberbullying>
- <https://www.commonensemedia.org/blog/apps-and-games-to-spark-kindness-and-compassion> *This website has Apps and Games to spark kindness.
- <https://evernote.com/?var=1>

Unit Overview

Content Area: Computers

Unit Title: Word Processing and Spreadsheet Skills

Grade Level: Four

Unit Summary: This unit prepares students with the knowledge and expertise in navigating and utilizing a word processor and spreadsheet to produce a written product.

Interdisciplinary Connections:

- *Math- focus on measurement- collect and organize data to form graphs*
- *Reading (non-fiction)- Create a brochure/flyer/ mini-book that includes text features*
- *Social Studies*
- *Science*

21st Century Themes and Skills:

- CRP2. Apply appropriate academic and technical skills.
- CRP6. Demonstrate creativity and innovation.
- CRP7. Employ valid and reliable research strategies.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Learning Targets

Standards (Content and Technology):

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.

Strand:

A. Technology Operations and Concepts: *Students demonstrate a sound understanding of technology concepts, systems and operations.*

CPI#:	Statement:
8.1.5.A.1	<i>Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.</i>
8.1.5.A.2	<i>Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.</i>
8.1.5.A.3	<i>Use a graphic organizer to organize information about problem or issue.</i>
8.1.5.A.4	<i>Graph data using a spreadsheet, analyze and produce a report that explains the analysis of</i>

	<i>the data.</i>	
8.1.5.A.5	<i>Create and use a database to answer basic questions.</i>	
8.1.5.A.6	<i>Export data from a database into a spreadsheet; analyze and produce a report that explains the analysis of the data.</i>	
Unit Essential Question(s): <ul style="list-style-type: none"> • What features are available in a word processing document? What features are available in a spreadsheet? • When is appropriate to use 		Unit Enduring Understandings: <ul style="list-style-type: none"> • Applications are available for specific purposes
Unit Learning Targets/Objectives: <i>Students will...</i> <ul style="list-style-type: none"> • <i>Students will understand and use technology systems.</i> • <i>Select and use applications effectively and productively.</i> • <i>Understand it is appropriate to use word processing for written products (essays/papers, articles,)</i> 		
Evidence of Learning		
Formative Assessments: <ul style="list-style-type: none"> • Teacher Observation • Classwork assignments 		
Summative/Benchmark Assessment(s): <ul style="list-style-type: none"> • Unit Test • Individual culminating project 		
Resources/Materials (copy hyperlinks for digital resources):		
Modifications: <i>Special Education Students</i> <ul style="list-style-type: none"> - Rephrase questions, directions, and explanations - Allow extended time to answer questions, and permit drawing, as an explanation - Provide extended time to complete tasks <i>English Language Learners</i> <ul style="list-style-type: none"> - Allow partner or group work - Rephrase questions, directions, and explanations - Allow extended time to answer questions - Provide extended time to complete tasks 		<i>At-Risk Students</i> <ul style="list-style-type: none"> - Consult with classroom teacher(s) for specific behavior interventions - Provide extended time to complete tasks <i>Gifted and Talented Students</i> <ul style="list-style-type: none"> - Offer opportunities for extension
Lesson Plans		

Lesson Name/Topic	Lesson Objective(s)	Time frame (day(s) to complete)
Word Processor: Introduction	Review of Third Grade Skills: <ul style="list-style-type: none"> - Use tab for indentations - Focus on Typing skills - Create and save a file (document or as pdf) in determined destination - Adjust font size, style (bold, underline, italicize), and color 	Week 1
Word Processor: Formatting Page	Typing- Capital letters Use tools: spell check, thesaurus, word count Insert hyperlink, header/ footer,	Week 2
Word Processor: Utilize Tools	Use tools: adjust margins, format columns, page orientation	Week 3
Word Processor: Images	Insert and Format a Picture or Clip Art	Week 4
Word Processor: Additional templates	Utilize Additional Templates: Calendar, Flyer, Article, Invitation, Menu, Certificate	Week 5
Spreadsheet	Use tools to adjust font, merge cells, Collect and Input data into spreadsheet Apply formulas to analyze data set Create a tab for different data sets Create bar graph to display a set of data	Week 6-10
Teacher Notes:		
Additional Resources Click links below to access additional resources used to design this unit:		

Unit Overview	
Content Area: Computers	
Unit Title: Research Skills & Multimedia	
Grade Level: Four	
<p>Unit Summary: This unit will continue the learner's experience with research skills and synthesize information into a multimedia presentation on a selected topic of interest.</p> <p>Interdisciplinary Connections: Social Studies; Science</p> <p>21st Century Themes and Skills:</p> <ul style="list-style-type: none"> CRP1. Act as a responsible and contributing citizen and employee. CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. <li style="padding-left: 20px;">CRP5. Consider the environmental, social and economic impacts of decisions. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. <li style="padding-left: 20px;">CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. <li style="padding-left: 20px;">CRP9. Model integrity, ethical leadership and effective management. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence. 	
Learning Targets	
Standards (Content and Technology):	
CPI#:	Statement:
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.
<p>Unit Essential Question(s):</p> <ul style="list-style-type: none"> ● What multimedia tools can I use and when is it appropriate to use them? ● What websites provide reliable and valid information? 	<p>Unit Enduring Understandings:</p> <p>There are a variety of mediums to use to present information.</p>
Unit Learning Targets/Objectives:	

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- Navigate teacher-chosen web sites
- Use age-appropriate software
- Use the Internet to research for report on core subject
- Demonstrate how to use a search engine

Evidence of Learning

Formative Assessments:

- Quiz
- Homework
- Teacher Observation

Summative/Benchmark Assessment(s):

- Group Presentation Project
- Unit Test

Resources/Materials (copy hyperlinks for digital resources)

Modifications:

Special Education Students

- Rephrase questions, directions, and explanations
- Allow extended time to answer questions, and permit drawing, as an explanation
- Provide extended time to complete tasks

English Language Learners

- Allow partner or group work
- Rephrase questions, directions, and explanations
- Allow extended time to answer questions
- Provide extended time to complete tasks

At-Risk Students

- Consult with classroom teacher(s) for specific behavior interventions
- Provide extended time to complete tasks

Gifted and Talented Students

- Offer opportunities for extension

Lesson Plans

Lesson Name/Topic	Lesson Objective(s)	Time frame (day(s) to complete)
Select topic	Students will select an area of interest.	Week 1
Develop research question	Students will focus in on an aspect of their topic to research and develop a question to investigate.	Week 2
Complete research	Students will use a variety of online sources to	Week 3-6

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	complete research.	
Design project	Students will design their project based on powerpoint options.	Week 7-9
Presentations	Students will present and watch one another's presentations.	Week 10
Teacher Notes:		
Additional Resources Click links below to access additional resources used to design this unit:		

Unit Overview

Content Area: Technology

Unit Title: Coding 101

Grade Level: Four

Unit Summary: This unit will introduce students to the concept of coding. This unit encompasses a variety of resources in which students will self-select tasks related to coding. Throughout the marking period students will engage in computer, ipad, or non-computer based opportunities to experience coding.

Interdisciplinary Connections:

- Math
- Science

21st Century Themes and Skills:

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP7. Employ valid and reliable research strategies.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP9. Model integrity, ethical leadership and effective management.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Learning Targets

Standards (Content and Technology):

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

CPI#:

Statement:

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).

Unit Essential Question(s):

- What is coding?
- Why is it useful?
- How does it affect our society?

Unit Enduring Understandings:

Coding is essential to future or prospective careers and is gaining awareness in our country.

Unit Learning Targets/Objectives:

Students will...

- engage in computational thinking and use computer programming as tools used in design and engineering
- develop algorithms

Evidence of Learning

Formative Assessments:

- Classwork
- Quiz
- Teacher Observation

Summative/Benchmark Assessment(s):

- Graph Paper Assessment

Resources/Materials (copy hyperlinks for digital resources):

- "Why Our Kids Must Learn to Code" <https://www.youtube.com/watch?v=STRPsW6IY8k>
- Unplugged: Building a Foundation <https://code.org/curriculum/course1/9/Teacher.pdf>
- Unplugged: Graph Paper Programming <https://code.org/curriculum/course2/1/Teacher>
- Unplugged: Beat the Clock: Sorting Networks: <https://www.youtube.com/watch?v=30WcPnvfiKE>

Modifications:

Special Education Students

- Rephrase questions, directions, and explanations
- Allow extended time to answer questions, and permit drawing, as an explanation
- Provide extended time to complete tasks
- Provide checklists geared towards task completion

English Language Learners

- Allow partner or group work
- Rephrase questions, directions, and explanations
- Allow extended time to answer questions
- Provide extended time to complete tasks

At-Risk Students

- Consult with classroom teacher(s) for specific behavior interventions
- Provide extended time to complete tasks

Gifted and Talented Students

- Offer opportunities for extension

Lesson Plans

Lesson Name/Topic	Lesson Objective(s)	Time frame (day(s) to complete)
Kick Off Event! Coding 101	Students will learn what coding is and it's role in different careers	Week 1
Unplugged: Color the Numbers	Students will understand how computers store drawings, photographs, and pictures by using only numbers.	Week 2
Unplugged: Count the dots	Students will represent numbers using binary numbers.	Week 3
Unplugged: Card Flip Magic	Students will understand how errors occur and are corrected. https://www.youtube.com/watch?v=-35-sPTYPJg	Week 4
Let's Code!	Students will program a game by using course 2 on code.org <ul style="list-style-type: none"> • Problem decomposition • Functions • Nested loops and conditionals • Digital citizenship • Internet transmission methods 	Week 5-10

Teacher Notes:

Additional Resources

Click links below to access additional resources used to design this unit:

- Code.org Provides both teacher education and student activities for use in the classroom
- <http://www.edutopia.org/blog/15-ways-teaching-students-coding-vicki-davis> This website offers a variety of coding activities. [Kodable, Cargobot, Codecombat,
- <http://codecombat.com/>