Computers

Grade 2

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Grade 2 Computers

Course Description: Grade 2 Computers will build off the skills and knowledge the students have attained during the previous year's course. Keyboarding will continue to be practiced throughout the year. Most importantly, students will explore more deeply their Google accounts which allows them access to a wide variety of educational programs. We will explore Gmail, Google Docs, Slides and Drawings. Internet research will allow students to gain real world experience navigating and finding information on a specific topic. Students will continue to learn basic block coding as they advance through their Code.org coursework. At the end of Grade 2 Computers students will be expected to be able to navigate to websites independently, feel confident using the basic functions in Docs and Drawings, understand the basics of coding and keyboard with increased speed and efficiency.

Course Sequence:

Unit 1: Computer Basics and Google Education: 13 weeks
Unit 2: Internet Safety and Research: 13 weeks
Unit 3: Coding and Design Thinking: 13 weeks

Pre-requisite: Grade 1 Computers

** Approximately 2 weeks will be spent on on-line practice assessments*

Unit 1 - Overview	
Content Area: Computers	
Unit Title: Computer Basics and Google Education	
Grade Level: 2	
Core Ideas: Students will review computer skills and vocabulary from last year and begin to build upon them. Discuss how technology has changed society and the positive and negative impacts it has caused. Computer history will be introduced and the rapid progression of technology highlighted. Students will gain an understanding of the role that technology plays in our everyday lives and in the workplace. Keyboarding skills will also be reviewed and practiced often during this year. Becoming comfortable navigating Google Classroom and the other apps on the Google Platform is an essential skill which will be focused on at the beginning of the school year. Being able to navigate the Internet independently and search for information is also a focus at the beginning of the year.	
Unit 1 - Standards	
Standards: (Content and Technology)**:**	
CPI#:	**Statement:**
Performance Expectations (NJSLS)	
Career Readiness, Life Literacies, and Key Skills	
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives
9.4.2.CI.2	Demonstrate originality and inventiveness in work
9.4.2.IML.1	Identify a simple search term to find information in a search engine or digital resource.
9.4.2.TL.1	Identify the basic features of a digital tool and explain the purpose of the tool
9.4.2.TL.5	Describe the difference between real and virtual experiences.
9.4.2.TL.6	Illustrate and communicate ideas and stories using multiple digital tools
9.1.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.
Computer Science and Design Thinking	
8.1.2.CS.1	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
8.1.2.CS.2	Explain the functions of common software and hardware components of computing systems.
8.1.2.CS.3	Describe basic hardware and software problems using accurate terminology.
8.1.2.NI.1	Model and describe how individuals use computers to connect to other individuals, places, information, and ideas through a network.
8.1.2.NI.2	Describe how the Internet enables individuals to connect with others worldwide.
8.1.2.IC.1	Compare how individuals live and work before and after the implementation of new computing technology.
8.1.2.DA.2	Store, copy, search, retrieve, modify, and delete data using a computing device.
8.2.2.ED.1	Communicate the function of a product or device.
8.2.2.ITH.1	Identify products that are designed to meet human wants or needs.
8.2.2.ITH.2	Explain the purpose of a product and its value.
8.2.2.ITH.3	Identify how technology impacts or improves life.
8.2.2.ITH.4	Identify how various tools reduce work and improve daily tasks.
Interdisciplinary Connection	
1.2.2.Cr3a	Create and assemble content for media arts productions, identifying basic principles (e.g., pattern, positioning, attention, and repetition.)
1.2.2.Cr3b	Identify and describe the effects of altering, refining and completing media artworks.
1.2.2.Pr4b	Practice combining varied academic, arts and media content to form media artworks.
1.2.2.Pr5a	Identify and enact basic skills such as handling tools, making choices, and soft skills for planning and creating media artworks.

1.2.2.Pr5b	Identify, describe and demonstrate basic creative skills such as trial-and-error and playful practice, within media arts production
1.2.2.Pr5c	Discover, experiment with and demonstrate creative skills for media artworks.
1.2.2.Cn10a	Use personal experiences, interests, information and models in creating media artworks.
RI.2.4.	Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
RI.2.7.	Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
W.2.6.	With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers

Intercultural Statements (*Amistad, Holocaust, LGBT, SEL, etc...)*

Amistad: Discuss how the access to technology is not equal, and there are many children that don't have the same opportunities.

Unit Essential Question(s):
- How is technology changing our world?
- How can we use computers to be creative and productive in school and at home?
- How can we use Google Education for School Projects?
- How can we stay safe when using our Google accounts?
- What is each Google App best used for?

Unit Enduring Understandings:
- Technology is changing rapidly
- There are pros and cons to technology
- Computers can help us express ourselves
- Programs are used for many things
- You can use Google for a variety of tasks
- Each Google app has a specific purpose
- There are specific rules to follow when using our school accounts
- Being able to login independently is very useful

Evidence of Learning

Formative Assessments:
Ed Club Typing Progress
K5 TechNet activities
Teacher Observations

Summative/Benchmark Assessment(s):
Vocab Quiz

Alternative Assessments:
Student conversations
Student projects

Resources/Materials:
ABCYa!
EdClub Typing
Google Education Suite
K5 Technet
Google Classroom
Faronics Insight
Magic School Bus Rides Again: Season 2 episode 4 "Nothing but Net"

Key Vocabulary:

Computer	Internet
Network	Search Box
Browser	Home Page
Search Engine	Hyperlinks
Email	Apps
Docs	Maximize
Slides	Minimize

Suggested Pacing Guide

Lesson Name/Topic	Student Learning Objective(s)	Suggested Tasks/Activities:	Day(s) to Complete
Introduction	-Rules & Procedures	-Explain program -Review rules and procedures	1

Navigating the Internet & How the Internet works	-Navigate independently to specific websites -Understand basics of how Internet works and how it has changed the world	-Demonstrate how to open a Browser -Show students parts of the Browser screen -Have students complete: https://www.k5technologycurriculum.com/computer-skills/ -Have students practice using search box to navigate to sites-Show on Smartboard -Watch videos explaining the Internet -Class work about how the Internet works	3
Using Windows	-Create a folder on the desktop -Save files to a folder on the desktop	-Demo how to make a folder and name it. -Create a painting in MS Paint -Show how to save files to a specific folder	2
Gmail	-Know how to log into Google accounts and open and use Gmail	-Demo proper keyboarding technique -Review the keys and the correct form -Show how to navigate to keyboard program	2
Docs	-Navigate independently to Google Docs -Basic Formatting in Docs	-Demonstrate how to navigate to Docs -Show students how to format their writing in Docs -Show how to edit and add images	3
Drawings	-Create a poster using Google Drawings	-Demonstrate how to open Drawings and use the basic tools -Teach how to use Word Art -Add images and play with formatting	2

Teacher Notes:

Additional Resources:

Differentiation/Modification Strategies

Students with Disabilities/504

- Preferential Seating
- Strategic/flexible grouping and pairing
- Ample wait time before calling on students
- Student self-assessment, self-monitoring of progress
- Speaking: Provide sentence starters, processing time, cues and prompts, embedded choices, practice time; repeating/ simplifying of directions; clear visual, verbal and demonstrative modeling; think/Pair/Share
- Have students set personal growth goals
- Groups/Pairs: teach rules and expectations; skills of independence – bridging phrases, disagreeing agreeably, voice level; strategies for moving in and out of groups; signal for getting teacher's attention
- Allow: flexible grouping; adequate/extra time; assign group roles; ample use of visuals; kinesthetic activities; rhythm, music, body movements; teach vocab in context, and in small chunks; break down assignments into manageable parts/tasks
- Reading: Use peer tutoring; label main ideas; label 5 W's; visual imagery; graphic organizers
- Allow: Highlighting of key words/concepts; silent pre-reading; partner reading
- Teach: Pre-reading strategies; 'During' reading strategies; Post-reading strategies; Use of manipulatives; Use of graphic organizers; Frequent repetition; Learning centers or stations that address varied activities, skills, learning modalities
- Writing: Shorten task; Require lists rather than sentences. Allow: note-taking; visual representation of ideas; collaborative writing; Brainstorm word bank; Pre-writing with graphic organizers. Provide: Model of writing; Structure for writing; Fill-in-blank form for note-taking

English Language Learners

- Give instructions/directions in writing and orally

- Assign a buddy, same language or English speaking
- Allow errors in speaking
- Allow errors in writing
- Highlight key vocabulary
- Reduce amount of work required
- Rephrase questions, directions, and explanations
- Allow extended time to answer questions, and permit drawing, as an explanation

Gifted and Talented

- Anchor Activities
- Appoint as teacher's helpers
- Assign additional Internet activities

Students at Risk

- Online Enrichment activities
- Peer tutoring

Unit 2 - Overview
Content Area: Computers
Unit Title: Internet Safety and Research
Grade Level: 2
Core Ideas: Internet safety and responsible technology use is a crucial topic for the students and is one that is taught every year and built upon. As more students are given access to technology at younger ages every year, this becomes even more important. Keeping personal information private and not communicating with strangers through video games and apps are two key areas of focus. Students must also learn to gather information from a variety of online sources. Being able to read, comprehend and take notes on nonfiction topics is a difficult skill, but it is important for them to start practicing.

Unit 2 - Standards	
Standards: (Content and Technology)**:**	
CPI#:	**Statement:**
Performance Expectations (NJSLS)	
Career Readiness,\ Life Literacies, and Key Skills	
9.4.2.CT.1	Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem
9.4.2.DC.1	Explain differences between ownership and sharing of information.
9.4.2.DC.2	Explain the importance of respecting digital content of others.
9.4.2.DC.3	Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4).
9.4.2.DC.4	Compare information that should be kept private to information that might be made public.
9.4.2.DC.5	Explain what a digital footprint is and how it is created.
9.4.2.DC.6	Identify respectful and responsible ways to communicate in digital environments.
9.4.2.DC.7	Describe actions peers can take to positively impact climate change
9.4.2.TL.7	Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts
9.4.2.IML.1	Identify a simple search term to find information in a search engine or digital resource.
9.4.2.IML.2	Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).
9.4.2.IML.3	Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults
9.4.2.IML.4	Compare and contrast the way information is shared in a variety of contexts
Computer Science and Design Thinking	
8.1.2.IC.1	Compare how individuals live and work before and after the implementation of new computing technology.

8.1.2.NI.3	Create a password that secures access to a device. Explain why it is important to create unique passwords that are not shared with others.
8.1.2.NI.4	Explain why access to devices needs to be secured.
8.1.2.DA.1	Collect and present data, including climate change data, in various visual formats.
8.1.2.DA.2	Store, copy, search, retrieve, modify, and delete data using a computing device.
8.1.2.DA.3	Identify and describe patterns in data visualizations.
8.1.2.DA.4	Make predictions based on data using charts or graphs.
8.2.2.ED.1	Communicate the function of a product or device.
8.2.2.ETW.1	Classify products as resulting from nature or produced as a result of technology.
8.2.2.ETW.2	Identify the natural resources needed to create a product.
8.2.2.ETW.3	Describe or model the system used for recycling technology.
8.2.2.ETW.4	Explain how the disposal of or reusing a product affects the local and global environment.
8.2.2.EC.1	Identify and compare technology used in different schools, communities, regions, and parts of the world.
Interdisciplinary Connection (*must include Companion Standard(s) R and W)*	
1.2.2.Cn11a	Discuss and demonstrate how media artworks, messages environments and ideas relate to everyday and cultural life, such as daily activities, popular media, connections with family and friends.
1.2.2.Cn11b	Interact appropriately with media arts tools and environments considering safety, rules and fairness.
RI.2.4.	Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
W.2.6.	With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.
W.2.7.	Participate in shared research and writing projects
W.2.8.	Recall information from experiences or gather information from provided sources to answer a question.

Intercultural Statements (*Amistad, Holocaust, LGBT, SEL, etc...)*

Holocaust: Know how to stay safe while online and how to be kind while playing games and communicating with others.

Unit Essential Question(s):

- How can we use technology responsibly?
- What are ways that we can make sure our information stays private?
- How does technology help us with research?

Unit Enduring Understandings:

- Technology allows us to connect with others in meaningful ways
- It is important to keep our information and identities private while online.
- People often lie about their real identity so you should not talk to strangers online
- There can be real world consequences to poor online behavior
- Not everything you read on the Internet is true
- You should use resources geared towards kids when researching
- Always use more than one source when researching

Evidence of Learning

Formative Assessments: BrainPop assignments
Common Sense Media assignments
Successful independent navigation to websites and finding information

Summative/Benchmark Assessment(s):
Online Safety and Vocabulary Quiz

Alternative Assessments:
Student conversations
Student choice of project

Resources/Materials:	**Key Vocabulary:**
BrainPop Jr. Common Sense Media Google Be Internet Awesome Code.Org Google Classroom Faronics Insight	Cyberbully Online Print Source Online Source Plagiarism Screentime Search Box Digital Citizen Search Engine Search Results

Suggested Pacing Guide

Lesson Name/Topic	**Student Learning Objective(s)**	**Suggested Tasks/Activities:**	**Day(s) to Complete**
Common Sense Media	-Understand how to balance the amount of time spent on technology -Be able to communicate safely online	-Complete lessons that are part of Common Sense Media's Digital Citzenship Curriculum -Media Balance & Well Being and Relationships & Communication	3
Internet Safety -BrainPop Jr.	Comprehend Internet Vocabulary	-Watch video together and discuss -Students work independently to complete BrainPop Activities Review answers as a class	1
Code.Org-Digital Trails	Understand how to make good choices whn online	-Watch video together and discuss -Complete unplugged lesson together with partners -Review worksheet together as a class	1
K5TechNet	-Know how to stay safe online	Activities "Internet Safety and the Internet" at https://www.k5technologycurriculum.com/2nd-grade/	2
Research Skills/Search Engines	-Effective search terms and efficient searching	-Review how to effectively search for specific information -Assign topics for students to research (Subjects from their classrooms ideally) -Have students fill out research sheets and give credit to the sources that they used	3
Research Project	-Create a poster or slideshow with ther research	-Explain how to turn their information into a presentation -Review how to use Docs to make a poster -Review how to use Slides to make a presentation -Discuss pros/cons of Docs vs. Slides	3

Teacher Notes: Be mindful of reading levels and check for understanding.

Additional Resources:
YouTube
K-5Tech.Net https://www.k5technologycurriculum.com/2nd-grade/

Differentiation/Modification Strategies

Students with Disabilities/504

- Preferential Seating
- Strategic/flexible grouping and pairing
- Ample wait time before calling on students
- Student self-assessment, self-monitoring of progress
- Speaking: Provide sentence starters, processing time, cues and prompts, embedded choices, practice time; repeating/ simplifying of directions; clear visual, verbal and demonstrative modeling; think/Pair/Share
- Have students set personal growth goals
- Groups/Pairs: teach rules and expectations; skills of independence – bridging phrases, disagreeing agreeably, voice level; strategies for moving in and out of groups; signal for getting teacher's attention

- Allow: flexible grouping; adequate/extra time; assign group roles; ample use of visuals; kinesthetic activities; rhythm, music, body movements; teach vocab in context, and in small chunks; break down assignments into manageable parts/tasks
- Reading: Use peer tutoring; label main ideas; label 5 W's; visual imagery; graphic organizers
- Allow: Highlighting of key words/concepts; silent pre-reading; partner reading
- Teach: Pre-reading strategies; 'During' reading strategies; Post-reading strategies; Use of manipulatives; Use of graphic organizers; Frequent repetition; Learning centers or stations that address varied activities, skills, learning modalities
- Writing: Shorten task; Require lists rather than sentences. Allow: note-taking; visual representation of ideas; collaborative writing; Brainstorm word bank; Pre-writing with graphic organizers. Provide: Model of writing; Structure for writing; Fill-in-blank form for note-taking

English Language Learners

- Give instructions/directions in writing and orally
- Assign a buddy, same language or English speaking
- Allow errors in speaking
- Allow errors in writing
- Highlight key vocabulary
- Reduce amount of work required
- Rephrase questions, directions, and explanations
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Gifted and Talented

- Anchor Activities
- Appoint as teacher's helpers
- Assign additional Internet activities

Students at Risk

- Online Enrichment activities
- Peer tutoring

Unit 3 - Overview	
Content Area: Computers	
Unit Title: Coding and Design Thinking	
Grade Level: 2	
Core Ideas: Coding is a skill that teaches students many skills that will benefit them for the rest of their lives. Skills such as critical thinking, problem solving, following multi-step directions, perseverance and teamwork all are used when practicing coding. This unit should be a mix of unplugged coding activities as well as a variety of online coding games. Students will also be introduced to some hands-on coding board games and coding robots.	
Unit 3 - Standards	
Standards: (Content and Technology)**:**	
CPI#:	**Statement:**
Performance Expectations (NJSLS)	
Career Readiness, Life Literacies, and Key Skills	
9.4.2.TL.7	Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts
9.4.2.CT.2	Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
9.4.2.CI.2	Demonstrate originality and inventiveness in work
Computer Science and Design Thinking	
8.1.2.AP.1	Model daily processes by creating and following algorithms to complete tasks.
8.1.2.AP.2	Model the way programs store and manipulate data by using numbers or other symbols to represent information.
8.1.2.AP.3	Create programs with sequences and simple loops to accomplish tasks.
8.1.2.AP.4	Break down a task into a sequence of steps.
8.1.2.AP.5	Describe a program's sequence of events, goals, and expected outcomes.
8.1.2.AP.6	Debug errors in an algorithm or program that includes sequences and simple loops.
8.1.2.DA.2	Store, copy, search, retrieve, modify, and delete data using a computing device.
8.2.2.ED.2	Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.
8.2.2.ED.3	Select and use appropriate tools and materials to build a product using the design process.
8.2.2.ED.4	Identify constraints and their role in the engineering design process.
8.2.2.NT.1	Model and explain how a product works after taking it apart, identifying the relationship of each part, and putting it back together.

8.2.2.NT.2	Brainstorm how to build a product, improve a designed product, fix a product that has stopped working, or solve a simple problem.
8.2.2.ITH.3	Identify how technology impacts or improves life.
8.2.2.ITH.4	Identify how various tools reduce work and improve daily tasks
8.2.2.ITH.5	Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution.
Interdisciplinary Connection (*must include Companion Standard(s) R and W)*	
RI.1.4.	Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.
RI.1.5.	Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.
W.1.3.	Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.
Intercultural Statements (*Amistad, Holocaust, LGBT, SEL, etc...)*	

Unit Essential Question(s):	**Unit Enduring Understandings:**
• What is coding? • How is coding used in everyday life? • What are th main steps of the design process? • How can we program robots to acomplish tasks?	• Computer programming is possible even for young students when they have the freedom to fail but keep trying • Block Coding is the foundation for thinking like a computer programmer • Coding allows you to program robots and other tools. • Problem solving and critical thinking are two crucial life skills learned through programming

Evidence of Learning

Formative Assessments: BrainPop and K5Tech assignments
Code.org Lesson Work
Group work with Botley Robots and Coding Caterpillar

Summative/Benchmark Assessment(s):
Vocabulary Quiz

Alternative Assessments:
Student conversations
Student project

Resources/Materials:	**Key Vocabulary:**	
BrainPop	Algorithm	Test
Code.Org	Coding	Evaluate
Botley Robots	Block Coding	Redesign
Coding Caterpillar	Computer Programming	
Code and Go Mouse Robot	Loop	
Flocabulary	Debug	
Google Classroom	Brainstorm	
Faronics Insight	Design	

Suggested Pacing Guide

Lesson Name/Topic	**Student Learning Objective(s)**	**Suggested Tasks/Activities:**	**Day(s) to Complete**
Brain Pop Jr.	-Undertsand the process of computer programming	-Watch “Computational Thinking” video together -Students will complete assigned activities independently	1
Code.Org	-Work through lessons in Code.org accounts	-Demonstrate how to log-in to Code accounts -Show how the program works and how to go through the lessons	7

		-Watch videos at beginning of lessons together -Students work at own pace	
Robots	-Be able to work together	-Introduce Botley Robots, Coding Caterpillar and Code and Go Robot Mouse -Assign groups -Give each group a challenge -Have students work together to complete challenges	3
Hour of Code	-Code using a variety of platforms	-Watch videos explaining impacts of coding and importance to our world -Review variety of websites with free coding activities available -Allow students to choose activities that interest them	2

Teacher Notes:

Additional Resources:
YouTube
K-5Tech.Net
https://code.org/learn
Design Process: https://pbskids.org/designsquad/parentseducators/workshop/process.html

Differentiation/Modification Strategies

Students with Disabilities/504
- Preferential Seating
- Strategic/flexible grouping and pairing
- Ample wait time before calling on students
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- Speaking: Provide sentence starters, processing time, cues and prompts, embedded choices, practice time; repeating/ simplifying of directions; clear visual, verbal and demonstrative modeling; think/Pair/Share
- Have students set personal growth goals
- Groups/Pairs: teach rules and expectations; skills of independence – bridging phrases, disagreeing agreeably, voice level; strategies for moving in and out of groups; signal for getting teacher's attention
- Allow: flexible grouping; adequate/extra time; assign group roles; ample use of visuals; kinesthetic activities; rhythm, music, body movements; teach vocab in context, and in small chunks; break down assignments into manageable parts/tasks
- Reading: Use peer tutoring; label main ideas; label 5 W's; visual imagery; graphic organizers
- Allow: Highlighting of key words/concepts; silent pre-reading; partner reading
- Teach: Pre-reading strategies; 'During' reading strategies; Post-reading strategies; Use of manipulatives; Use of graphic organizers; Frequent repetition; Learning centers or stations that address varied activities, skills, learning modalities
- Writing: Shorten task; Require lists rather than sentences. Allow: note-taking; visual representation of ideas; collaborative writing; Brainstorm word bank; Pre-writing with graphic organizers. Provide: Model of writing; Structure for writing; Fill-in-blank form for note-taking

English Language Learners
- Give instructions/directions in writing and orally
- Assign a buddy, same language or English speaking
- Allow errors in speaking
- Allow errors in writing
- Highlight key vocabulary
- Reduce amount of work required
- Rephrase questions, directions, and explanations
- Allow extended time to answer questions, and permit drawing, as an explanation

Gifted and Talented
- Anchor Activities

- Appoint as teacher's helpers
- Assign additional Internet activities

Students at Risk

- Online Enrichment activities
- Peer tutoring