Branchburg Township Public Schools

Office of Curriculum and Instruction

Grade 1 Technology Curriculum

Adopted by the Board of Education October 2022

This curriculum is aligned with the 2020 New Jersey Student Learning Standards – Computer Science and Design Thinking

Curriculum Scope and Sequence			
Content Area	Technology	**Course Title/Grade Level:**	First Grade

Topic/Unit Name		Suggested Pacing (Days/Weeks)
Topic/Unit #1	Digital Citizenship	6 Weeks
Topic/Unit #2	Coding (Sequence & Loops)	12 Weeks
Topic/Unit #3	Typing (Finger Placement & Home Row Keys)	6 Weeks
Topic/Unit #4	Google Suite Introduction	6 Weeks

Topic/Unit 1 Title	Digital Citizenship	Approximate Pacing	6 Weeks

STANDARDS
NJSLS Technology
8.1.2.IC.1: Compare how individuals live and work before and after the implementation of new computing technology. • 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.NI.4: Explain why access to devices need to be secured. 8.2.2.EC.1: Identify and compare technology used in different schools, communities, regions, and parts of the world. • 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.

Interdisciplinary Connections:	21st Century Skills:
CCSS.MATH.CONTENT.1.NBT.C.4 : Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. Example: Students can add up how much time they are using technology and participating in offline activities, and arrive at a healthy number for online time.	9.4.2.DC.1: Explain differences between ownership and sharing of information. Example : Keeping Passwords Private 9.4.2.DC.2: Explain the importance of respecting the digital content of others. Example : Students can complete an activity in which they determine how a specific website with specific content will make them feel, and how they can respond to Green, Yellow, and Red websites.
Technology Standards:	**Career Ready Practices:**
See Above (This is a Technology Course)	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) Review the importance of being respectful to other people's

	opinions and ideas online, even if you do not agree with them. **Example: Students can discuss how they can respond when they see something they do not agree with or how to respond to a classmate posting something they do not like online.**

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

1. **The decisions I make online can greatly impact how other people feel and look at me.**
2. **The importance of keeping personal information private.**
3. **What does being a good digital citizen look like?**

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge
Students will know: **Online Safety, Passwords, Privacy**	***Students will be able to:*** ***Tell the difference between appropriate online behavior and inappropriate behavior.*** ***Develop a strong password and understand the importance of one.*** ***Be able to balance online and offline activities.***

ASSESSMENT OF LEARNING

Summative Assessment (Assessment at the end of the learning period)	**Students will answer questions on Digital Citizenship Topics**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	**Teacher Observations and Notes**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to	**Student Research, Handouts, Group Activities**

demonstrate their knowledge, understanding and proficiency)	
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	**Students can demonstrate their understanding of safe practices by appropriate implementation and answering questions related to the topic at the beginning of the unity and the culmination of the unit. An assessment will be administered later in the year as well.**
RESOURCES	
Core instructional materials: **https://www.commonsense.org/education/scope-and-sequence**	
Supplemental materials: **https://www.edutopia.org/topic/digital-citizenship** Instructional tutorials, visuals, simulations and handouts	
Modifications for Learners	
See appendix	

Topic/Unit 2 Title	Coding (Sequence & Loops)	Approximate Pacing	12 Weeks

STANDARDS

NJSLS Technology

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.
8.2.2.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.

Interdisciplinary Connections:	21st Century Skills:
CCSS.MATH.CONTENT.1.OA.B.3 : Apply properties of operations as strategies to add and subtract.2 Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.) **Example: When students are working on loops, they will need to determine how many times they need to have their characters repeat a process in order to get to the goal.**	**9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content.** **Example : Students will be accessing a Coding program (such as Kodable) and will need to understand how to appropriately guide their characters across a stage by successfully inputting a sequence of code blocks.**
Technology Standards:	**Career Ready Practices:**
See Above (This is a Technology Course)	**9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job.** **Example : What sort of jobs require programming/ troubleshooting / coding skills?**

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS	
1. **Uses vocabulary appropriately** 2. **Can access and use a variety of digital applications** 3. **Participates in collaborative learning activities** 4. **Can this program/application help me accomplish my learning goal?** 5. **How can I use and/or recognize coding and logic skills in my everyday activities?** 6. **Can I use digital applications to demonstrate my learning?** 7. **How did my plans change during programming/ coding?**	
STUDENT LEARNING OBJECTIVES	
Key Knowledge	**Process/Skills/Procedures/Application of Key Knowledge**
Students will know: **Further develop understanding of coding and sequencing and understand logic involved in programming in various programs and applications** **Continue improving keyboarding and typing skills**	***Students will be able to:*** **Continue Kodable lessons and progress through Sequence, Loops, and Functions.**
ASSESSMENT OF LEARNING	
Summative Assessment (Assessment at the end of the learning period)	**Portfolio** **Rubrics** **Notes**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	**Anecdotal Records** **Teacher Observation**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	**Group wide activities or alternative programs** **Paper Coding**
Benchmark Assessments (used to establish baseline achievement data and	**Students will be assessed at the beginning of the section on familiarity with programs, and will be able to progress further based on progress.**

measure progress towards grade level standards; given 2-3 X per year)	
RESOURCES	
Core instructional materials: **www.kodable.com** **www.abcya.com** **http://pbskids.org/** **https://csedweek.org/unplugged/thinkersmith**	
Supplemental materials: **Code.org, Instructional tutorials, visuals, simulations and handouts**	
Modifications for Learners	
See appendix	

Topic/Unit 3 Title	Typing (Finger Placement & Home Row Keys)	Approximate Pacing	6 Weeks

STANDARDS

NJSLS Technology

• 8.2.2.ED.1: Communicate the function of a product or device.
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.

Interdisciplinary Connections:	21st Century Skills:
CCSS.MATH.CONTENT.1.MD.C.4 : Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. Example : Students will compare the WPM and Accuracy from different sessions and from the beginning of their keyboard practice and conclusion of Keyboarding unit.	9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. Example : In completing keyboarding tasks, students will need to correctly type the keys that are on the screen to proceed further along in lessons.
Technology Standards:	**Career Ready Practices:**
See Above (This is a Technology Course)	9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. Example: Prior to and during keyboarding lessons, students will be reminded of the importance of being respectful of others progress and ability. Students enter at different levels of ability and will be progressing at individualized paces.

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

1. Why is it important to develop proper keyboarding techniques early on?
2. Home Row finger placement
3. What can keyboarding be used for beyond keyboard practice.

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge
Students will know: **QWERTY, Home Row, Hand placement on a keyboard, Backspace, Space Bar**	***Students will be able to:*** **Keyboard to the best of their ability by the end of the unit.**

ASSESSMENT OF LEARNING	
Summative Assessment (Assessment at the end of the learning period)	**Portfolio** **Rubrics** **Notes**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	**Anecdotal Records** **Teacher Observation**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	**Group wide activities or alternative programs** **Handouts**
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	**Students will take a timed typing test early in the year to see where they are in WPM and Accuracy, and will take a follow up at the end of the unit to measure progress.**

RESOURCES
Core instructional materials: **www.typing.com** **www.abcya.com** **https://www.typing.com/student/game/keyboard-climber-2** **https://www.turtlediary.com/games/typing-games.html**
Supplemental materials:

Instructional tutorials, visuals, simulations and handouts
Modifications for Learners
See appendix

Topic/Unit 4 Title	Google Suite Introduction	Approximate Pacing	6 Weeks

STANDARDS

NJSLS Technology

8.1.2.DA.2: Store, copy, search, retrieve, modify, and delete data using a computing device.
8.1.2.CS.3: Describe basic hardware and software problems using accurate terminology.
• 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 Connections:	21st Century Skills:
CCSS.ELA-LITERACY.RL.1.1 : Ask and answer questions about key details in a text. **Example: Students will insert images using Google Docs and Image Search about major events from a story that was shared with them that states key details from the story.**	**9.4.2.TL.2: Create a document using a word processing application.** **Example: Students will create a short story using Google Docs (or equivilant program).**
Technology Standards:	**Career Ready Practices:**
See Above (This is a Technology Course)	**9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).** **Example : Students will gather results from a class survey and type results on an appropriate Google application.**

UNIT/TOPIC ESSENTIAL QUESTIONS AND ENDURING OBJECTIVES/UNDERSTANDINGS

1. **Understanding the best application and/or program to use for a particular task.**
2. **How to appropriately utilize various features and functions of various Google applications.**
3. **How to appropriately share information with others.**
4. **How to create a unique and personalized document.**

STUDENT LEARNING OBJECTIVES

Key Knowledge	Process/Skills/Procedures/Application of Key Knowledge

Students will know: **Google Docs, Google Sheets, Google Forms, Charts, Tables, Inserting Images, Comments**	*Students will be able to:* **Compose a Google Doc with various edits** **Make edits on a google Sheet (or equivalent database program)**
ASSESSMENT OF LEARNING	
Summative Assessment (Assessment at the end of the learning period)	**Creation of editing in application used for the particular lessons**
Formative Assessments (Ongoing assessments during the learning period to inform instruction)	**Teacher Observation and Notes**
Alternative Assessments (Any learning activity or assessment that asks students to *perform* to demonstrate their knowledge, understanding and proficiency)	**Group wide activities or alternative programs**
Benchmark Assessments (used to establish baseline achievement data and measure progress towards grade level standards; given 2-3 X per year)	**Students can be assessed on their familiarity with programs at the beginning of the year, and reassessed at the conclusion of this unit.**
RESOURCES	
Core instructional materials: **https://gsuite.google.com/**	
Supplemental materials: Instructional tutorials, visuals, simulations and handouts	
Modifications for Learners	
See appendix	