Course:Technology & Design

Intro to Tech & Design Lab: Unit 1

Grade Level(s): K	**Length of Unit: 1 week**

Unit Rationale:
Students will be using technology to support their learning in a variety of platforms during the school year. In this unit, students will learn about safety and rules of the tech lab, and how they should behave appropriately during technology classroom. Teacher will discuss appropriate and acceptable usage of the computers and technology equipment not only within the lab, but within their classrooms as well. Students will also receive their passwords, and log onto the Chromebooks.

Stage 1 - Desired Results

Understandings:

Students will understand that…

- *Students will be using technology to support their learning in a variety of platforms during the school year. In this unit, students will learn about safety and rules of the tech lab, and how they should behave appropriately during technology classroom.*
- *Teacher will discuss appropriate and acceptable usage of the computers and technology equipment not only within the lab, but within their classrooms as well. Students will also receive their passwords, and log onto the Chromebooks.*

Essential Questions:

- What does it mean to use the computer appropriately?
- What are the expectations of behavior in the technology lab?
- How does a student log onto the computer network at school?
- What projects are you excited about this year?

Content:

Students will know…

- *the appropriate rules in the technology lab.*
- *log on to the chromebooks, using their username and password.*

Skills:

Students will be able to…

- *Identify the rules of the technology lab.*
- *Know the procedures of the classroom.*
- *Understand safety in the classroom.*

NJ Student Learning Standards -
21st Century College & Career Practice Standards

CRP2. Apply appropriate academic and technical skills

CRP11. Use technology to enhance productivity

NJSLS-Career Readiness, Life Literacies,and Key Skills:Standards & Disciplinary Concepts (Career Readiness, Life Literacies, and Key Skills Practices and 9.2 Career Awareness, Exploration and Preparation Standards)

CLKS Practices:

1. Act as a responsible and contributing community members and employee
4. Demonstrate creativity and innovation
8. Use technology to enhance productivity increase collaboration and communicate effectively

Explanation of how **CLKS Practices** connect to the unit:
Students will learn about the responsibilities of learning in the technology lab, learning how technology, collaboration and creativity will be used throughout the school year.

9.2 standards

Explanation of how 9.2 standards connect to the unit:

Interdisciplinary Standards

- *RI.K.1 With prompting and support, ask and answer questions about key details in a text.*
- *SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.*
- *NJSLS-M.K.CC. A. Know number names and the count sequence. B. Count to tell the number of objects.*

Explanation of how interdisciplinary standards connect to the unit:
Embedding numeracy: Numeracy connects mathematics with situations that require capabilities such as problem solving, critical judgment, and sense-making related to non-mathematical contexts.

Technology Integration (9.4 Standards) -
https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-9.4LifeLiteraciesandKeySkills.pdf

At minimum two standards from the 9.4 list must be included. The appropriate grade band must be used for these standards. (Starts on pg.22)

• 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.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.

Explanation of how 9.4 standards connect to the unit:

Students will be involved in discussions on how to use the technology safely within the classroom setting, and at home, and what it means to use computers responsibly.

Stage 2- Assessment Evidence:	
Assessment:	
Formative	**Informal assessment through questioning, exit tickets, health and wellness journal, student reflections**
Summative	**Student portfolios, end of unit project based on journal entries, Kahoot, Quizlet, presentations**
Alternative	**Slideshow, poster, oral presentation**
Benchmark	**Questionnaire, survey**
Other	**Informal assessment through questioning, exit tickets, sketch book entries, student reflections**

Stage 3 - Learning Plan	
Learning Activities: ● Class discussions about rules and expectations ● Class scavenger hunt *Trajectory of how you are bringing students to develop the understandings listed above*	**Differentiation:** **ELL:**Extend time requirements ● Preferential seating ● Check often for understanding ● Oral/visual directions/prompts when needed ● Provide hands-on materials and/ manipulatives for students to practice using new content knowledge *The ELL Math Resources Folder is located*

	HERE
	G&T: • Allow students to take an active role in teaching content to other students in the school • Propose interest-based extension activities for early finishers
	Special Ed: • Utilize a multi-sensory approach during instruction • Modify test content and/or format • Preferential seating as needed
	504: • Review, restate and repeat • Provide notes • Chunk assignments
	Students at Risk: • Deliver instruction utilizing varied learning styles including audio, visual and tactile/kinesthetic • Provide individual instruction as needed • Meet with students frequently to ensure understanding • Allow verbal rather than written responses
	Link to Math Differentiation Chart and **2021 Accommodations Chart**

Core Instructional Resources

Teacher Pedagogical Resources: *What skills/strategies, and resources helped the teacher design this unit*

Student Materials: *What materials are provided to students during this unit. (core texts, websites, etc.)*

***All materials must list a Lexile Level (https://hub.lexile.com/find-a-book/search)*

Notes:

Course:Technology & Design

Keyboarding Unit 2

Grade Level(s): K	**Length of Unit: 5 weeks throughout the year**

Unit Rationale:
Communicating on the computer with word processing will be essential to the success of students within their academic careers, and beyond. Students will learn proper technique and keyboarding skills using a typing program. To enhance these typing skills, students will need repetition and practice, and by tracking their progress, students and teachers will be able to assess how well they have improved in their typing skills throughout the year.

Stage 1 - Desired Results

Understandings:

Students will understand that…

- *Keyboarding technique is an essential tool for computer literacy.*
- *Different hands work for different sides of the keyboard.*
- *The row in the middle of the keyboard is the home row.*
- *The shift key enables you to make a capital letter.*
- *There are specific purposes of the space bar, enter, and backspace button.*

Essential Questions:

1. Where are the proper places to put your fingers on the keyboard?
2. How do you delete a letter?
3. How do you make a space between letters?
4. How do you get to the next line in a document?
5. Why would you want to make a document?
6. How do you create a border in a document?

Content:

Students will know…

- *where to place their fingers on the keyboard.*
- *several of the major functional keys on the keyboard.*
- *to write a sentence using a sentence starter.*

Skills:

Students will be able to…

- *type the alphabet.*
- *create an uppercase letter.*
- *delete a mistake*
- *use the enter key to get to next line.*
- *make a border.*
- *know the keys on the home row.*

NJ Student Learning Standards -

8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.

8.1.2.A.2 Create a document using a word processing application.

8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).

21st Century College & Career Practice Standards

CRP2. Apply appropriate academic and technical skills

CRP6. Demonstrate creativity and innovation.

CRP11. Use technology to enhance productivity

NJSLS-Career Readiness, Life Literacies,and Key Skills:Standards & Disciplinary Concepts (Career Readiness, Life Literacies, and Key Skills Practices and 9.2 Career Awareness, Exploration and Preparation Standards)

CLKS Practices:

7. Use technology to enhance productivity increase collaboration and communicate effectively
8. Work productively in teams while using cultural/global competence

Explanation of how **CLKS Practices** connect to the unit:
Students will work productively as a team to use keyboarding as a way to communicate effectively. Discussions will take place on how keyboarding will help students will their future communications within the workspace.

9.2 standards

9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job.

Explanation of how 9.2 standards connect to the unit:

Keyboarding is a skill required by many professions, and students will discuss the importance of learning the proper technique.

Interdisciplinary Standards

W.K.6 With guidance and support from adults, explore a variety of digital tools to produce and publish writing, including in collaboration with peers.
NJSLSA.W6 Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

Explanation of how interdisciplinary standards connect to the unit:
Students will learn how to use digital tools as a way to produce writing and publishing.

Technology Integration (9.4 Standards) -
https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-9.4LifeLiteraciesandKeySkills.pdf

At minimum two standards from the 9.4 list must be included. The appropriate grade band must be used for these standards. (Starts on pg.22)

• 9.4.2.TL.2: Create a document using a word processing application.
• 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).
• 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1).
9.4.2.DC.6 Identify respectful and responsible ways to communicate in digital environments.

Explanation of how 9.4 standards connect to the unit:
Keyboarding is an important skill to use when word processing, and this tool will allow students to communicate their ideas better within many different digital tools.

Stage 2- Assessment Evidence:	
Assessment:	
Formative	*Checking for keyboarding technique*
Summative	*Leveled typing tests*
Alternative	*Class typing competitions*
Benchmark	*Benchmark typing tests*
Other	*Completed projects typed*

Stage 3 - Learning Plan	
Learning Activities: ● (Students will create documents that include a sentence expressing their idea.These sentences will be directed by the teacher throughout the year based on the season and event going on in the school at the time.	**Differentiation:** **ELL:** ● Extend time requirements ● Preferential seating ● Check often for understanding ● Oral/visual directions/prompts when

needed
- Provide hands-on materials and/ manipulatives for students to practice using new content knowledge

G&T:
- Allow students to take an active role in teaching content to other students in the school
- Propose interest-based extension activities for early finishers

Special Ed:
- Utilize a multi-sensory approach during instruction
- Modify test content and/or format
- Preferential seating as needed

504:
- Review, restate and repeat
- Provide notes
- Chunk assignments

Students at Risk:
- Deliver instruction utilizing varied learning styles including audio, visual and tactile/kinesthetic
- Provide individual instruction as needed
- Meet with students frequently to ensure understanding
- Allow verbal rather than written responses

Link to Math Differentiation Chart and

2021 Accommodations Chart

Core Instructional Resources

Teacher Pedagogical Resources: *What skills/strategies, and resources helped the teacher design this unit*

Student Materials: *Seesaw, ipads, Typing Club Jr.*

***All materials must list a Lexile Level (https://hub.lexile.com/find-a-book/search)*

Notes:

Course:Technology & Design

How it works Unit 3

Grade Level(s): K	**Length of Unit:3 weeks**

Unit Rationale:
Using Ipad applications to teach the design process, and how things work is an important skill to develop at an early age. By bringing these concepts into the classroom, students are excited to learn through interactive and exploring. Some of these activities will include: Little Builders, Pettison's Inventions, My very first garage, How it works, and Invention at play

Stage 1 - Desired Results

Understandings: *Students will understand that…* ● *different technology devices can be used for different purposes* ● *there are numerous technology devices used in the classroom to benefit learning* ● *the design loop is a process helps solve problems*	**Essential Questions:** 1. 5.How are things made? 2. What are simple machines? 3. How does an engine work? 4. What is the design loop?
Content: *Students will know…* ● *differentiate technology devices from one another.* ● *understand the different purposes of technology devices* ●	**Skills:** *Students will be able to…* ● *Identify the technology devices in the lab.* ● *Know the different uses for technology in the classroom.*

NJ Student Learning Standards -

8.2.2.B.3 Identify products or systems that are designed to meet human needs.

8.2.2.B.4 Identify how the ways people live and work has changed because of technology.

8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).

8.2.2.C.5 Describe how the parts of a common toy or tool interact and work as part of a system.

8.2.2.C.6 Investigate a product that has stopped working and brainstorm ideas to correct the problem.

8.2.2.C.2 Create a drawing of a product or device that communicates its function to peers and discuss.

21st Century College & Career Practice Standards

CRP2. Apply appropriate academic and technical skills

CRP6. Demonstrate creativity and innovation.

CRP11. Use technology to enhance productivity

NJSLS-Career Readiness, Life Literacies,and Key Skills:Standards & Disciplinary Concepts (Career Readiness, Life Literacies, and Key Skills Practices and 9.2 Career Awareness, Exploration and Preparation Standards)

Career readiness, life literacies, and key skills education *provides students with the necessary skills to make informed career and financial decisions, engage as responsible community members in a digital society, and to successfully meet the challenges and opportunities in an interconnected global economy.*
https://www.nj.gov/education/standards/clicks/index.shtml or
https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-CLKS.pdf (Pgs 15-16)

Two or three Career Readiness, Life Literacies, and Key Skills Practices standards should be left in each unit, the rest should be removed from the list below.

CLKS Practices:

4. Demonstrate creativity and innovation
5. Utilize critical thinking to make sense of problems and persevere in solving them
8. Use technology to enhance productivity increase collaboration and communicate effectively

Explanation of how **CLKS Practices** connect to the unit:
Students will use technology devices to enhance discovering how technology works, while solving problems.

9.2 standards

Explanation of how 9.2 standards connect to the unit:

Interdisciplinary Standards

- *RI.K.1 With prompting and support, ask and answer questions about key details in a text.*
- *SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.*
- *NJSLS-M.K.CC. A. Know number names and the count sequence. B. Count to tell the number of objects.*

Explanation of how interdisciplinary standards connect to the unit:
Embedding numeracy: Numeracy connects mathematics with situations that require capabilities such as problem solving, critical judgment, and sense-making related to non-mathematical contexts.

Technology Integration (9.4 Standards) -

• 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content.

Explanation of how 9.4 standards connect to the unit:

Stage 2- Assessment Evidence:	
Assessment:	
Formative	**Informal assessment through questioning**
Summative	*Completed activities within the applications*
Alternative	*Video screen captures of the student successes*
Benchmark	
Other	*Presentation of sketches*

Stage 3 - Learning Plan

Learning Activities:

- Participate in several different learning apps

Trajectory of how you are bringing students to develop the understandings listed above

Differentiation:

ELL:

- Extend time requirements
- Preferential seating
- Check often for understanding
- Oral/visual directions/prompts when needed
- Provide hands-on materials and/ manipulatives for students to practice using new content knowledge

G&T:

- Allow students to take an active role in teaching content to other students in the school
- Propose interest-based extension

activities for early finishers

Special Ed:

- Utilize a multi-sensory approach during instruction
- Modify test content and/or format
- Preferential seating as needed

504:
Review, restate and repeat

- Review, restate and repeat
- Provide notes
- Chunk assignments

Students at Risk:

- Deliver instruction utilizing varied learning styles including audio, visual and tactile/kinesthetic
- Provide individual instruction as needed
- Meet with students frequently to ensure understanding
- Allow verbal rather than written responses

Link to Math Differentiation Chart and

2021 Accommodations Chart

Core Instructional Resources

Teacher Pedagogical Resources: *What skills/strategies, and resources helped the teacher design this unit*

Student Materials: Ipads, **Little Builders, Pettison's Inventions, My very first garage, How it works, and Invention at play**

***All materials must list a Lexile Level (https://hub.lexile.com/find-a-book/search)*

Notes:

Course:Technology & Design

Digital Books Unit 4

Grade Level(s): K	**Length of Unit: 6 weeks**

Unit Rationale:
Digital Books are growing and expanding as a new way to excite and inspire kids to read. These interactive books allow students to read and interact with the stories, teaching them pronunciation, spelling, new language, and storytelling in a fun and exciting platform. In this Unit spread out throughout the year, students will interact with some of their favorite authors, including Dr. Seuss, Storybots, Starfall, Fantastic Flying Books of Mr. Morris Lessmore, and Charles Schultz.

Stage 1 - Desired Results

Understandings:

Students will understand that…

- *applications on the ipad can be used for numerous learning purposes including reading.*
- *interactive reading can be an exciting way to learn new words and read new stories.*

Essential Questions:

1. How can you read books on a digital device?
2. What are the advantages and disadvantages to reading books on a digital device?
3. How have digital books changed the way we read and learn?

Content:

Students will know…

- *how to interact with the books they are reading*
- *explore the pages of the book, and share their favorite parts of the book*
- *how to properly use the ipads*

Skills:

Students will be able to…

- *open and close apps*
- *navigate and interact within the environment platform*
- *turn pages*
- *sketch pages from their reading*

NJ Student Learning Standards -
8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).

8.2.2.B.3 Identify products or systems that are designed to meet human needs.

8.2.2.B.4 Identify how the ways people live and work has changed because of technology.

21st Century College & Career Practice Standards
CRP2. Apply appropriate academic and technical skills

CRP6. Demonstrate creativity and innovation.

CRP11. Use technology to enhance productivity

NJSLS-Career Readiness, Life Literacies,and Key Skills:Standards & Disciplinary Concepts (Career Readiness, Life Literacies, and Key Skills Practices and 9.2 Career Awareness, Exploration and Preparation Standards)

Career readiness, life literacies, and key skills education *provides students with the necessary skills to make informed career and financial decisions, engage as responsible community members in a digital society, and to successfully meet the challenges and opportunities in an interconnected global economy.*
https://www.nj.gov/education/standards/clicks/index.shtml or
https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-CLKS.pdf (Pgs 15-16)

Two or three Career Readiness, Life Literacies, and Key Skills Practices standards should be left in each unit, the rest should be removed from the list below.

CLKS Practices:

5. Utilize critical thinking to make sense of problems and persevere in solving them
8. Use technology to enhance productivity increase collaboration and communicate effectively

Explanation of how **CLKS Practices** connect to the unit:
Students will use technology devices to enhance reading and learning, while solving problems.

9.2 standards should be listed when appropriate. The appropriate grade band must be used for these standards.

https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-9.2CareerAwareness.pdf (Starts on pg.37)

Explanation of how 9.2 standards connect to the unit:

Interdisciplinary Standards

Pick a subject area and find standards from the same grade level or grade band that connect to this work. At minimum two standards must be included (only one could be ELA)

Explanation of how interdisciplinary standards connect to the unit:

Technology Integration (9.4 Standards) -
https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-9.4LifeLiteraciesandKeySkills.pdf

At minimum two standards from the 9.4 list must be included. The appropriate grade band must be used for these standards. (Starts on pg.22)

• 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content.
• 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1).

Explanation of how 9.4 standards connect to the unit:

Understand how to use digital tools and virtual spaces as ways to help learning.

Stage 2- Assessment Evidence:	
Assessment:	
Formative	**Informal assessment through questioning**
Summative	*Completed activities within the applications*
Alternative	*Video screen captures of the student successes*
Benchmark	
Other	

Stage 3 - Learning Plan	
Learning Activities: ● Use several different apps that encourage reading digitally *Trajectory of how you are bringing students to develop the understandings listed above*	**Differentiation:** **ELL:** ● Extend time requirements ● Preferential seating ● Check often for understanding ● Oral/visual directions/prompts when needed ● Provide hands-on materials and/ manipulatives for students to practice using new content knowledge

G&T:

- Allow students to take an active role in teaching content to other students in the school
- Propose interest-based extension activities for early finishers

Special Ed:

- Utilize a multi-sensory approach during instruction
- Modify test content and/or format
- Preferential seating as needed

504:

- Review, restate and repeat
- Provide notes
- Chunk assignments

Students at Risk:

- Deliver instruction utilizing varied learning styles including audio, visual and tactile/kinesthetic
- Provide individual instruction as needed
- Meet with students frequently to ensure understanding
- Allow verbal rather than written responses

Link to Math Differentiation Chart and

2021 Accommodations Chart

Core Instructional Resources

Teacher Pedagogical Resources: *What skills/strategies, and resources helped the teacher design this unit*

Student Materials: Ipads, Some app examples: Seuss, Storybots, Starfall, Fantastic Flying Books of Mr. Morris Lessmore, and Charles Schultz.

***All materials must list a Lexile Level (https://hub.lexile.com/find-a-book/search)*

Notes:

Course:Technology & Design

Educational/ Art Apps Unit 5

Grade Level(s): K	**Length of Unit: 8 weeks throughout the year**

Unit Rationale:

Using Ipad applications to enhance what students are learning within the classroom is an exciting way to tie in the topics within their homerooms and bring them to life in the technology lab. In Kindergarten and 1st grade, students are introduced to many exciting topics including mathematics, social studies, and science. By bringing these concepts into the classroom, students are excited to learn through interactive and exploring. Some of these activities will include: Insects, World Explorer, Amazing Alex, and ToDo Math.

Using artistic applications to enhance what students are learning within the classroom is an exciting way to enrich students within the technology lab. This cross-curricular topics will cover shapes, designing, photography and creating digital artwork. In Kindergarten and 1st grade, students are introduced to a variety of art platforms to bring out their creativity. Applications will include Eye Paint, This is Sand, Let's Create, Digital artist, and Picassohead.

Stage 1 - Desired Results

Understandings:	**Essential Questions:**
Students will understand that… ● *applications on the ipad can be used for numerous learning purposes.* ● *technology can enhance learning in a variety of platforms.* ● *it is important to have an understanding of how to navigate on the ipad is a helpful skill*	1. How can we use the ipad for educational purposes and relate it to the topics in the classroom? 2. How do you properly navigate an appropriate environment to engage learning?
Content: *Students will know…* ● *differentiate technology devices from one another.* ● *understand the different purposes of technology devices*	**Skills:** *Students will be able to…* ● *understand how to navigate educational related apps* ● *open and close programs* ● *turn on/off ipads* ● *charge the devices* ● *operate the volume* ● *treat the devices with respect* ● *share the devices*

NJ Student Learning Standards -

8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).

21st Century College & Career Practice Standards

CRP2. Apply appropriate academic and technical skills

CRP6. Demonstrate creativity and innovation.

CRP11. Use technology to enhance productivity

NJSLS-Career Readiness, Life Literacies,and Key Skills:Standards & Disciplinary Concepts (Career Readiness, Life Literacies, and Key Skills Practices and 9.2 Career Awareness, Exploration and Preparation Standards)

CLKS Practices:

3. Demonstrate creativity and innovation
4. Utilize critical thinking to make sense of problems and persevere in solving them
8. Use technology to enhance productivity increase collaboration and communicate effectively

Explanation of how **CLKS Practices** connect to the unit:
Use technology to express creativity, and aid in solving problems.

9.2 standards

Explanation of how 9.2 standards connect to the unit:

Interdisciplinary Standards

Explanation of how interdisciplinary standards connect to the unit:

Technology Integration (9.4 Standards) -

• 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content.
• 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1).

Explanation of how 9.4 standards connect to the unit:
Understand how to use digital tools and virtual spaces as ways to help learning.

Stage 2- Assessment Evidence:	
Assessment:	
Formative	**Informal assessment through questioning**
Summative	*Completed activities within the applications*
Alternative	*Video screen captures of the student successes*
Benchmark	
Other	

Stage 3 - Learning Plan

Learning Activities:

- Participate in a variety of online apps that will challenge students to think creatively.

Differentiation:

ELL:

- Extend time requirements
- Preferential seating
- Check often for understanding
- Oral/visual directions/prompts when needed
- Provide hands-on materials and/ manipulatives for students to practice using new content knowledge

G&T:

- Allow students to take an active role in teaching content to other students in the school
- Propose interest-based extension activities for early finishers

Special Ed:
- Utilize a multi-sensory approach during instruction
- Modify test content and/or format
- Preferential seating as needed

504:
- Review, restate and repeat
- Provide notes
- Chunk assignments

Students at Risk:
- Deliver instruction utilizing varied learning styles including audio, visual and tactile/kinesthetic
- Provide individual instruction as needed
- Meet with students frequently to ensure understanding
- Allow verbal rather than written responses

Link to Math Differentiation Chart and

2021 Accommodations Chart

Core Instructional Resources

Teacher Pedagogical Resources: *What skills/strategies, and resources helped the teacher design this unit*

Student Materials: *ipads, several educational and art apps*

***All materials must list a Lexile Level (https://hub.lexile.com/find-a-book/search)*

Notes:

Course:Technology & Design

Coding Unit 6

Grade Level(s): K	**Length of Unit: 3 weeks**

Unit Rationale:
In the growing world of technology, there are increasingly more ways to create and design applications and programs, in very kid friendly ways. Students will need to understand that there are easy ways to program on the computer, to create projects. Learning to code can open a world of possibilities for students, including the avenue to create video games, apps, and websites. In this introduction to programming, students will learn basics that they can continue from home on the websites www.code.org, and www.scratch.mit.edu. Students will also be developing an understanding of algorithms as they demonstrate steps to an everyday task.

Stage 1 - Desired Results

Understandings:

Students will understand that…

- *Understand the importance of coding in our world today.*
- *Discover how to complete simple coding tasks.*
- *Use online tools to solve multiple problems.*
- *an algorithm can be a list of every day tasks*

Essential Questions:

1. - What is code?
2. - Why is important to learn how to code?
3. - What can you create from code?
4. What is an algorithm?
5. Why is it important to complete tasks in order?

Content:

Students will know…

some simple coding basics.
how to create a simple code action.
- how to list and demonstrate the steps to an every day task
- an understanding of how a computer takes input through a series of written commands and interprets and displays information as an output

Skills:

Students will be able to…

- - create a simple code action
- - create algorithms to solve simple code problems
- -demonstrate

NJ Student Learning Standards -

8.2.2.E.1 List and demonstrate the steps to an everyday task.
8.2.2.E.2 Demonstrate an understanding of how a computer takes input through a series of written commands and then interprets and displays information as output.
8.2.2.E.3 Create algorithms (a sets of instructions) using a pre-defined set of commands (e.g., to move a student or a character through a maze).

8.2.2.E.4 Use appropriate terms in conversation (e.g., basic vocabulary words: input, output, the operating system, debug, and algorithm).

21st Century College & Career Practice Standards

CRP2. Apply appropriate academic and technical skills

CRP6. Demonstrate creativity and innovation.

CRP11. Use technology to enhance productivity

NJSLS-Career Readiness, Life Literacies,and Key Skills:Standards & Disciplinary Concepts (Career Readiness, Life Literacies, and Key Skills Practices and 9.2 Career Awareness, Exploration and Preparation Standards)

CLKS Practices:

4. Demonstrate creativity and innovation
5. Utilize critical thinking to make sense of problems and persevere in solving them
8. Use technology to enhance productivity increase collaboration and communicate effectively

Explanation of how **CLKS Practices** connect to the unit:
Within this coding unit, students will use creativity and innovation, critical thinking and technology to help aid them in solving algorithms. Students will also work in teams to help each other, and understand that code is a worldwide activity and can be written in different languages, and can be learned in a variety of languages.

9.2 standards

9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job.

Explanation of how 9.2 standards connect to the unit:
Discuss how coding is used in every day life in a variety of professions.

- *RI.K.1 With prompting and support, ask and answer questions about key details in a text.*
- *SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.*
- *NJSLS-M.K.CC. A. Know number names and the count sequence. B. Count to tell the number of objects.*

Explanation of how interdisciplinary standards connect to the unit:
Embedding numeracy: Numeracy connects mathematics with situations that require capabilities such as problem solving, critical judgment, and sense-making related to non-mathematical contexts.

Technology Integration (9.4 Standards) -
• 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content.
• 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

Explanation of how 9.4 standards connect to the unit:
Students will learn how to use the virtual space to solve projects within the coding application, and explore different ways of thinking to arrive at their answers.

Stage 2- Assessment Evidence:	
Assessment:	
Formative	*Exit tickets, oral and written responses*
Summative	End of unit coding tasks completed
Alternative	*One on One individual work with student*
Benchmark	*Each coding class has levels to complete*
Other	

Stage 3 - Learning Plan	
Learning Activities: ● Participate in code.org hour of code activities. *Trajectory of how you are bringing students to develop the understandings listed above*	**Differentiation:** **ELL:** ● Extend time requirements ● Preferential seating ● Check often for understanding ● Oral/visual directions/prompts when needed

- Provide hands-on materials and/ manipulatives for students to practice using new content knowledge

G&T:

- Allow students to take an active role in teaching content to other students in the school
- Propose interest-based extension activities for early finishers

Special Ed:

- Utilize a multi-sensory approach during instruction
- Modify test content and/or format
- Preferential seating as needed

504:

- Review, restate and repeat
- Provide notes
- Chunk assignments

Students at Risk:

- Deliver instruction utilizing varied learning styles including audio, visual and tactile/kinesthetic
- Provide individual instruction as needed
- Meet with students frequently to ensure understanding
- Allow verbal rather than written responses

Link to Math Differentiation Chart and

2021 Accommodations Chart

Core Instructional Resources

Teacher Pedagogical Resources: *What skills/strategies, and resources helped the teacher design this unit*

Student Materials: *ipads, code.org*

***All materials must list a Lexile Level (https://hub.lexile.com/find-a-book/search)*

Notes:

Course:Technology & Design

Art Apps Unit 7

Grade Level(s): K	**Length of Unit: 4 weeks throughout the year**

Unit Rationale:
Using artistic applications to enhance what students are learning within the classroom is an exciting way to enrich students within the technology lab. This cross-curricular topics will cover shapes, designing, photography and creating digital artwork. In Kindergarten and 1st grade, students are introduced to a variety of art platforms to bring out their creativity. Applications will include Eye Paint, This is Sand, Let's Create, Digital artist, and Picassohead.

Stage 1 - Desired Results

Understandings:

Students will understand that…

- *applications on the ipad can be used for numerous learning purposes.*
- *technology can enhance learning in a variety of platforms.*
- *understanding how to navigate on the ipad is a helpful skill*
-
-

Essential Questions:

1. How can we use the ipad for artistic purposes and relate it to the topics in the classroom?
2. How do you properly navigate an appropriate environment to engage learning?
3.

Content:

Students will know…

- *differentiate technology devices from one another.*
- *understand the different purposes of technology devices*
- *how to use a stylus pen properly*
-

Skills:

Students will be able to…

- *understand how to navigate educational related apps*
- *open and close programs*
- *turn on/off ipads*
- *charge the devices*
- *operate the volume*
- *treat the devices with respect*
- *share the devices*
-
-

NJ Student Learning Standards -

8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).

21st Century College & Career Practice Standards

CRP2. Apply appropriate academic and technical skills

CRP6. Demonstrate creativity and innovation.

CRP11. Use technology to enhance productivity

NJSLS-Career Readiness, Life Literacies,and Key Skills:Standards & Disciplinary Concepts (Career Readiness, Life Literacies, and Key Skills Practices and 9.2 Career Awareness, Exploration and Preparation Standards)

Career readiness, life literacies, and key skills education *provides students with the necessary skills to make informed career and financial decisions, engage as responsible community members in a digital society, and to successfully meet the challenges and opportunities in an interconnected global economy.*
https://www.nj.gov/education/standards/clicks/index.shtml or
https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-CLKS.pdf (Pgs 15-16)

Two or three Career Readiness, Life Literacies, and Key Skills Practices standards should be left in each unit, the rest should be removed from the list below.

CLKS Practices:

1. Demonstrate creativity and innovation
2. Utilize critical thinking to make sense of problems and persevere in solving them
3. Use technology to enhance productivity increase collaboration and communicate effectively

Explanation of how **CLKS Practices** connect to the unit:

9.2 standards should be listed <u>when appropriate</u>. The <u>appropriate grade band</u> must be used for these standards.

https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-9.2CareerAwareness.pdf (Starts on pg.37)

Explanation of how 9.2 standards connect to the unit:

Interdisciplinary Standards

- *RI.K.1 With prompting and support, ask and answer questions about key details in a text.*
- *SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.*
- *NJSLS-M.K.CC. A. Know number names and the count sequence. B. Count to tell the number of objects.*
- *K.G A. Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).*

Explanation of how interdisciplinary standards connect to the unit:
Embedding numeracy: Numeracy connects mathematics with situations that require capabilities such as problem solving, critical judgment, and sense-making related to non-mathematical contexts;

Identify and describe shapes;

Technology Integration (9.4 Standards) -
https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-9.4LifeLiteraciesandKeySkills.pdf

At minimum two standards from the 9.4 list must be included. The appropriate grade band must be used for these standards. (Starts on pg.22)

• 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content.

Explanation of how 9.4 standards connect to the unit:

Stage 2- Assessment Evidence:	
Assessment:	
Formative	*Small day-to-day assessments*
Summative	*Large end-of-unit*
Alternative	*For students that can't complete normal assessment*
Benchmark	*Standard style assessment to gauge if all students in the course are on pace. Only in a mid and last unit. If the benchmark will not be in this unit, list which unit and provide a brief description of the skills/content the benchmark is expecting.*
Other	*Diagnostic, Projects, etc.*

Stage 3 - Learning Plan	
Learning Activities: ● Participate in a variety of online apps that will challenge students to think creatively.	**Differentiation:** **ELL:**

- Extend time requirements
- Preferential seating
- Check often for understanding
- Oral/visual directions/prompts when needed
- Provide hands-on materials and/ manipulatives for students to practice using new content knowledge

G&T:

- Allow students to take an active role in teaching content to other students in the school
- Propose interest-based extension activities for early finishers

Special Ed:

- Utilize a multi-sensory approach during instruction
- Modify test content and/or format
- Preferential seating as needed

504:

- Review, restate and repeat
- Provide notes
- Chunk assignments

Students at Risk:

- Deliver instruction utilizing varied learning styles including audio, visual and tactile/kinesthetic
- Provide individual instruction as needed
- Meet with students frequently to ensure understanding
- Allow verbal rather than written responses

	Link to Math Differentiation Chart and **2021 Accommodations Chart**

Core Instructional Resources

Teacher Pedagogical Resources: *What skills/strategies, and resources helped the teacher design this unit*

Student Materials: *What materials are provided to students during this unit. (core texts, websites, etc.)*

***All materials must list a Lexile Level (https://hub.lexile.com/find-a-book/search)*

Notes:

Course:Technology & Design

Vehicle Design Challenge Unit 7

Grade Level(s): K	**Length of Unit: 3 weeks**

Unit Rationale:
Beginning design challenges at an early age will help build a foundation for students each year, as they will be continuing these challenges each year as they develop their technology and problem solving skills. Beginning here in Kindergarten, students will learn about the different types of vehicles: those that transport people and goods from place to place. They will learn that vehicles include cars, trucks, or buses, and that most vehicles have wheels, and many of them help transport things we buy and sell. In this Unit, students will be manufacturing a vehicle that meets a very specific need. They will be presenting the vehicle to the head of the design and production of an auto manufacturing company, and the vehicle will in some way help the town.

Stage 1 - Desired Results

Understandings:

Students will understand that…

- *vehicles have a variety of different purposes that all help a community.*
- *vehicles are made of an assortment of shapes including 2D and 3D shapes*
- *technology involving vehicles have changed in many ways since they were invented.*
- *technology is create, used and changed by humans*
- *technology is using science and industry to help solve common problems in life.*
- *Technology is very helpful to humans.*
- *vehicles can use a variety of types of fuels.*

Essential Questions:

1. -In what ways do humans create, use, and change technologies?
2. How do we combine shapes to make different shapes?
3. How is technology helpful to humans?
4. How have vehicles changed over time?
5. What are some different uses of vehicles?
6. What is technology?
7. What is transportation?
8. What types of fuel do vehicles use?

Content:

Students will know…

- *design a blueprint for their vehicle.*
- *develop a vehicle that will be used for a very specific purposes, bringing people or things*

Skills:

Students will be able to…

- - Create blueprint design for their vehicle
- - Design 3-d shapes within structure
- - Use cooperative teamwork skills
- - Utilize the design process

from place to place. ● *design a vehicle and identify the shapes involved in the design process.* ● *present their vehicle to a manufacturing company.* ● *decide what type of vehicle they will make and answer the following questions:* Does it have wheels? Does it fly? Or, is it a vehicle you use on the water? How will your vehicle be used? Will it transport goods? Will it be used to take people places? Will it travel long distances, like outer space? ● trace and cut out no more than 20 shapes all together. ● decide on what fuel your vehicle will use. ● write a few sentences telling the name of your vehicle, how it works, what fuel it uses, and what it is used for. ● build their vehicle out of shapes, illustrate your vehicle, and build your vehicle out of legos.	● - Build and construct using supplies given ● - Create a model design that resembles the original design

NJ Student Learning Standards -

8.2.2.A.3 Identify a system and the components that work together to accomplish its purpose.
8.2.2.A.4 Choose a product to make and plan the tools and materials needed.

8.2.2.A.5 Collaborate to design a solution to a problem affecting the community.

8.2.2.B.1 Identify how technology impacts or improves life.
8.2.2.B.2 Demonstrate how reusing a product affects the local and global environment.
8.2.2.B.3 Identify products or systems that are designed to meet human needs.
8.2.2.B.4 Identify how the ways people live and work has changed because of technology.
8.2.2.D.1 Collaborate and apply a design process to solve a simple problem from everyday experiences.
8.2.2.D.2 Discover how a product works by taking it apart, sketching how parts fit, and putting it back together.
8.2.2.D.3 Identify the strengths and weaknesses in a product or system.
8.2.2.D.4 Identify the resources needed to create technological products or systems.
8.2.2.D.5 Identify how using a tool (such as a bucket or wagon) aids in reducing work.

8.2.5.C.1 Collaborate with peers to illustrate components of a designed system.
8.2.5.C.2 Explain how specifications and limitations can be used to direct a product's development.
8.2.5.C.3 Research how design modifications have lead to new products.
8.2.5.C.4 Collaborate and brainstorm with peers to solve a problem evaluating all solutions to provide the best results with supporting sketches or models.
8.2.5.C.5 Explain the functions of a system and subsystems.
8.2.5.C.6 Examine a malfunctioning tool and identify the process to troubleshoot and present options to repair the tool.
8.2.5.C.7 Work with peers to redesign an existing product for a different purpose.

8.2.5.D.1 Identify and collect information about a problem that can be solved by technology, generate ideas to solve the problem, and identify constraints and trade-offs to be considered.

8.2.5.D.2 Evaluate and test alternative solutions to a problem using the constraints and trade-offs identified in the design process to evaluate potential solutions.

21st Century College & Career Practice Standards

CRP2. Apply appropriate academic and technical skills
CRP4. Communicate clearly and effectively and with reason
CRP5. Consider the environmental, social and economic impacts of decisions.
CRP6. Demonstrate creativity and innovation.
CRP9. Model integrity, ethical leadership and effective management.
CRP11. Use technology to enhance productivity
CRP12. Work productively in teams while using cultural global competence.

NJSLS-Career Readiness, Life Literacies,and Key Skills:Standards & Disciplinary Concepts (Career Readiness, Life Literacies, and Key Skills Practices and 9.2 Career Awareness, Exploration and Preparation Standards)

Career readiness, life literacies, and key skills education *provides students with the necessary skills to make informed career and financial decisions, engage as responsible community members in a digital society, and to successfully meet the challenges and opportunities in an interconnected global economy.*
https://www.nj.gov/education/standards/clicks/index.shtml or
https://www.nj.gov/education/standards/clicks/Docs/2020NJSLS-CLKS.pdf (Pgs 15-16)

Two or three Career Readiness, Life Literacies, and Key Skills Practices standards should be left in each unit, the rest should be removed from the list below.

CLKS Practices:

1. Act as a responsible and contributing community members and employee
3. Consider the environmental, social and economic impacts of decisions
5. Demonstrate creativity and innovation
8. Utilize critical thinking to make sense of problems and persevere in solving them
9. Work productively in teams while using cultural/global competence

Explanation of how **CLKS Practices** connect to the unit:
Students will work in teams to design their car using LEGOS and understand the environmental impact of their project, and along the way demonstrate creativity and innovation, through critical thinking and problem solving. Students will discuss environmental impacts of different types of cars.

9.2 standards
9.1.2.CAP.1: Make a list of different types of jobs and describe the skills associated with each job.

Explanation of how 9.2 standards connect to the unit:

Discuss a car designer's job and what kind of work it requires. Brainstorm other jobs related to cars, and what kinds of jobs require different types of cars.

Interdisciplinary Standards

- **6.1.2.CivicsPD.1:** Engage in discussions effectively by asking questions, considering facts, listening to the ideas of others, and sharing opinions.
- **6.1.2.CivicsPD.2:** Establish a process for how individuals can effectively work together to make decisions.

Explanation of how interdisciplinary standards connect to the unit:

Students will listen to one another and work together in groups to create their own version of their cars.

Technology Integration (9.4 Standards) -
• 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
• 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive).

Explanation of how 9.4 standards connect to the unit:
Within this unit, students will use original ideas and inventiveness to create their car.

Stage 2- Assessment Evidence:

Assessment:

Formative	*Informal questioning*
Summative	*Design sketch displayed on projector*
Alternative	*Teacher assists in the presentation to make it discussion based and ask questions so students will share their work as independently as they can.*
Benchmark	
Other	*Share presentation of vehicle to the class*

Stage 3 - Learning Plan	
Learning Activities: ● Learn about different types of cars ● Sketch out a prototype ● Brainstorm what materials you will need ● Build project with Legos ● Take a picture of your project and submit into Seesaw ● Present your project to small and large groups	**Differentiation:** **ELL:** ● Extend time requirements ● Preferential seating ● Check often for understanding ● Oral/visual directions/prompts when needed ● Provide hands-on materials and/ manipulatives for students to practice using new content knowledge **G&T:** ● Allow students to take an active role in teaching content to other students in the school ● Propose interest-based extension activities for early finishers **Special Ed:** ● Utilize a multi-sensory approach during instruction ● Modify test content and/or format ● Preferential seating as needed **504:** ● Review, restate and repeat ● Provide notes ● Chunk assignments **Students at Risk:** ● Deliver instruction utilizing varied learning styles including audio, visual

	and tactile/kinesthetic • Provide individual instruction as needed • Meet with students frequently to ensure understanding • Allow verbal rather than written responses **Link to Math Differentiation Chart and** **2021 Accommodations Chart**

Core Instructional Resources

Teacher Pedagogical Resources: *What skills/strategies, and resources helped the teacher design this unit*

Student Materials: *sketchbooks, legos, car books*

***All materials must list a Lexile Level (https://hub.lexile.com/find-a-book/search)*

Notes: