

Long Beach Island Consolidated School District Curriculum Guide

Grade: 5

Content Area: Computer Science and Design Thinking

Introduction:

All students in Grade 5 Computer Science and Design Thinking will have opportunities to apply computer science skills to solve local and global issues and design solutions to problems. They will also collaborate to share and communicate their thinking with diverse audiences. In addition to understanding internet safety, students will understand the nature of technology, the interaction of technology and humans, and the effect of technology on the natural world. Skills include performing tasks, computational thinking, coding, creating spreadsheets, and problem solving. Students will learn the parts of a computer and use individual Chromebook devices to create collaborative, digital artifacts. All technology units follow the NJ Student Learning Objectives. Student progress will be measured in a variety of methods.

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Original Adoption: August 20, 2019
Created By: Chloe Sheplin
Revised on: August 16, 2022
Revised By: Cathy McBride

Recommended Pacing Guide	
Unit 1: Cybersafety	5 Days
Unit 2: Word Processing, Research and Portfolios	10 Days
Unit 3: Interacting with Data	10 Days
Unit 4: Coding	10 Days

*There are about 35 Technology classes throughout the school year.

Unit 1: Cybersafety	Duration: 5 Days
Standards/Learning Targets	
<p>New Jersey Technology Strands:</p> <ul style="list-style-type: none"> ● 8.1 Computer Science: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. ● 8.2 Design Thinking: All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment. 	
<p>New Jersey Technology Standards:</p> <p>Standard 8.1 Computer Science: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.</p> <p>CS: Computer Science 8.1.5.CS.1, 8.1.5.CS.2, 8.1.5.CS.3 NI: Network and Internet 8.1.5.NI.1, 8.1.5.NI.2 IC: Impacts of Computing 8.1.5.IC.1, 8.1.5.IC.2 DA: Data & Analysis 8.1.5.DA.1, 8.1.5.DA.2, 8.1.5.DA.3, 8.1.5.DA.5</p>	

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AP: Algorithms & Programming 8.1.5.AP.1

8.2 Design Thinking: All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.

ED: Engineering Design 8.2.5.ED.1, 8.2.5.ED.2, 8.2.5.ED.4

ITH: Interaction of Technology and Humans 8.2.5.ITH.1, 8.2.5.ITH.2, 8.2.5.ITH.3, 8.2.5.ITH.4

NT: Nature of Technology 8.2.5.NT.1, 8.2.5.NT.2

ETW: Effects of Technology on the Natural World 8.2.5.ETW.1, 8.2.5.ETW.2, 8.2.3.ETW.3

EC: Ethics & Culture 8.2.5.EC.1

Primary Interdisciplinary Connections:

English Language Arts

RI.5.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*

RI. 5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

RI. 5.10 By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently.

Career Readiness, Life Literacies, and Key Skills Practices

- Demonstrate creativity and innovation.
- Utilize critical thinking to make sense of problems and persevere in solving them.
- Use technology to enhance productivity, increase collaboration and communicate effectively.
- Consider the environmental, social and economic impacts of decisions
- Act as a responsible and contributing community member and student

Career Readiness, Life Literacies, and Key Skills

9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity

9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.

9.4.5.CT.2: Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem.

9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.

9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.

9.4.5.DC.1: Explain the need for and use of copyrights.

9.4.5.DC.2: Provide attribution according to intellectual property rights guidelines using public domain or creative commons media.

9.4.5.DC.3: Distinguish between digital images that can be reused freely and those that have

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copyright restrictions.
 9.4.5.DC.4: Model safe, legal, and ethical behavior when using online or offline technology.
 9.4.5.DC.5: Identify the characteristics of a positive and negative online identity and the lasting implications of online activity.
 9.4.5.DC.6: Compare and contrast how digital tools have changed social interactions.
 9.4.5.DC.7: Explain how posting and commenting in social spaces can have positive or negative consequences.
 9.4.5.IML.1: Evaluate digital sources for accuracy, perspective, credibility and relevance

Evidence of Student Learning

<p>Formative Tasks:</p> <ul style="list-style-type: none"> ● Teacher Observation ● Teacher Checklist ● Verbal question & answer ● Self-evaluation of performance and progress ● Class discussions ● Peer editing ● Self-evaluation 	<p>Alternative Assessments:</p> <ul style="list-style-type: none"> ● End of Unit Project ● Portfolios ● Performance Tasks
<p>Summative Assessments:</p> <ul style="list-style-type: none"> ● Student participation ● Student presentation of completed project 	<p>Benchmark Assessments:</p> <ul style="list-style-type: none"> ● Baseline SGO ● Mid-year SGO ● End of year SGO

Knowledge & Skills

<p>Unit Objectives: <i>Students will know...</i> What is cyber safety How to maintain cybersecurity and cyber ethics using appropriate online behaviors</p>	<p>Unit Objectives: <i>Students will be able to...</i> Explain cybersafety Determine and maintain cybersecurity and cyberethics using appropriate online behavior Discuss appropriate ways to maintain cybersecurity and appropriate online behaviors. Explain internet etiquette Create a list of rules regarding Internet etiquette. Create a list of rules in a word processing document that outlines appropriate</p>
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	behaviors when online with regard to cyber safety.
<p>Enduring Understandings: Students will understand...</p> <ul style="list-style-type: none"> • Cybersecurity and cyberethics 	<p>Essential Questions: What is cybersecurity? How do I keep my personal information safe? What vocabulary terms are involved with understanding and explaining cybersecurity?</p>

Core Instructional & Supplemental Materials

<p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> • SafeKids Quiz • Fifth Grade, Cybersecurity Projects, Lessons, Activities • Simple encryption activity https://curriculum.code.org/pwc/ayp/8/ • Free Cyber Security Games Education Arcade • Play Interland - Be Internet Awesome • Demonstrate proper use and practices • KidPix • BrainPopJr. • Google Earth • G-Suite • GMail • Classroom Library • Computers • iPad • Chromebooks • Internet • Google • www.brainpopjr.co • www.abcya.com Cyber-Five Internet Safety • ABCya! • Code.org • Tynker.com • Kodable.com • Scratch • Qwertytown for practicing keyboard skills for accuracy and speed • Tools and videos code.org video library • www.lbischools.org 	<p>Varied Levels of Text:</p> <ul style="list-style-type: none"> • The internet is like a Puddle Shona Innes • Cyber Safety Simply: A Cautionary Picture Book by Dee Smith • Bully by Patricia Pollaco • Cell Phony • What Does it Mean to Be Safe
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- www.scholastic.com
- www.readingeggs.com

Accommodations/Modifications

English Language Learners:

- Collaborate with ELL department to make necessary modifications for students
- Provide translated material
- Provide differentiation for students as needed
- Use student helpers and cooperative learning
- Use visual aids
- Rephrase vocabulary
- Allow for alternate forms of responses

Special Education/504 Plans/Students with Disabilities:

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Shorten assignments to focus on mastery of key concepts
- Restate, reword and clarify directions
- Lessen the amount of information presented
- Allow for alternate forms of responses
- Increase eye contact
- Maintain close proximity
- Attention techniques
- Screen, mouse, and or sound modification
- Adapted access/programs

Students at Risk of Failure:

- Make sure children feel welcome and comfortable while being discrete
- Help to provide basic needs while the child is in school (food, clothing, etc)
- Provide resources for basic needs outside of school (medical, shelter, food, etc)
- Pair with adult mentor or buddy
- Rephrase vocabulary
- Provide structure and adhere to a consistent daily routine with clear and concise rules
- Facilitate successful experiences

Economically Disadvantaged:

- Provide clear, achievable expectations, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Perspective and experiences of the children need to be considered
- Create ways for students to share their emotions
- Give every student the same opportunity for success.

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- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Daily affirmations
- Asking to hear students' hopes and offering reinforcements of those hopes
- Telling students why they can succeed

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Recognize native languages and cultures
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary

Gifted and Talented

- Peer mediated strategies
- Cooperative learning groups
- Differentiated instruction

Presentation accommodations allow a student to:

- Vary the method of presentation: lecture, small groups, large group, demonstration, individual experimentation
- Explore real world connections
- Use technology tools to enhance content

Response accommodations allow a student to:

- Turn and Talk
- Reward risk taking while encouraging students to think "outside of the box"

Setting accommodations allow a student to:

- Use flexible seating
- Have choice in seating/grouping

Timing accommodations allow a student to:

- Have flexible pacing in terms of content, assignments, and assessments
- Explore extended activities

Scheduling accommodations allow a student to:

- Establish a timeline for completing a project
- Have rigorous Pacing

Organization skills accommodations allow a student to:

- Model executive functioning

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- Utilize independent skills practices

Assignment modifications allow a student to:

- Complete enrichment tasks
- Write longer passages on essays and open ended responses including academic vocabulary
- Answer higher order thinking questions
- Cite text evidence
- Create alternate projects or assignments, student developed rubrics, student choice when completing a project or alternate labs

Curriculum modifications provide:

- Topics of interest to the student and/or relevant to how the world works
- Students access to supplemental reading materials matched to individual student lexiles
- Opportunities for open-ended, self-directed activities
- Opportunities to get graded or assessed using a different standard than the one for others

Unit 2: Word Processing, Research and Portfolios	Duration: 10 Days
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Standards/Learning Targets

New Jersey Technology Strands:

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CS: Computer Science 8.1.5.CS.1, 8.1.5.CS.2, 8.1.5.CS.3

NI: Network and Internet 8.1.5.NI.1, 8.1.5.NI.2,

IC: Impacts of Computing 8.1.5.IC.1, 8.1.5.IC.2

DA: Data & Analysis 8.1.5.DA.1, 8.1.5.DA.4 8.1.5.DA.3, 8.1.5.DA.5

AP: Algorithms & Programming 8.1.5.AP.1

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Primary Interdisciplinary Connections:

English Language Arts

RI.5.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*

RI. 5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

RI. 5.10 By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently.

W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information

W.5.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

Science

5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Career Readiness, Life Literacies, and Key Skills Practices:

- Demonstrate creativity and innovation.
- Utilize critical thinking to make sense of problems and persevere in solving them.
- Use technology to enhance productivity, increase collaboration and communicate effectively.
- Consider the environmental, social and economic impacts of decisions
- Act as a responsible and contributing community member and student

Career Readiness, Life Literacies, and Key Skills

9.4.5.Cl.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity

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9.4.5.DC.6: Compare and contrast how digital tools have changed social interactions.

9.4.5.DC.7: Explain how posting and commenting in social spaces can have positive or negative consequences.

9.4.5.IML.1: Evaluate digital sources for accuracy, perspective, credibility and relevance.

9.4.5.IML.2: Create a visual representation to organize information about a problem or issue.

9.4.5.IML.3: Represent the same data in multiple visual formats in order to tell a story about the data.

9.4.5.IML.4: Determine the impact of implicit and explicit media messages on individuals, groups, and society as a whole.

9.4.5.IML.5: Distinguish how media are used by individuals, groups, and organizations for varying purposes.

9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions.

9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social.

9.4.5.TL.1: Compare the common uses of at least two different digital tools and identify the advantages and disadvantages of using each.

9.4.5.TL.2: Sort and filter data in a spreadsheet to analyze findings.

9.4.5.TL.3: Format a document using a word processing application to enhance text, change page formatting, and include appropriate images, graphics, or symbols.

9.4.5.TL.4: Compare and contrast artifacts produced individually to those developed collaboratively.

9.4.5.TL.5: Collaborate digitally to produce an artifact.

Evidence of Student Learning

Formative Tasks:

- Teacher Observation
- Teacher Checklist

Alternative Assessments:

- End of unit project
- Student self-reflection about creation

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<ul style="list-style-type: none"> ● Verbal question & answer ● Self-evaluation of performance and progress ● Exit Slip ● Keyboarding tasks ● Question and answer sheets 	<p>or discussion while planning a project</p> <ul style="list-style-type: none"> ● rubric to score student work and presentation of final creation ● Teacher checklist to record student understanding of skills based on participation and performance of skills
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<p>Summative Assessments:</p> <ul style="list-style-type: none"> ● Student participation ● Student presentation of completed project 	<p>Benchmark Assessments:</p> <ul style="list-style-type: none"> ● Baseline SGO ● Mid-year SGO ● End of year SGO
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Knowledge & Skills

<p>Unit Objectives: Students will know...</p> <ul style="list-style-type: none"> ● Word processing tools ● Steps to insert images in documents ● Steps to create digital portfolio 	<p>Unit Objectives: Students will be able to...</p> <ul style="list-style-type: none"> ● Understand tools used in word processing programs ● Create a table using the “insert table” tab to create a table with specified columns and margin formats. ● Use a word processing program to create a document such as an opinion piece and practice using tools for formatting font size and color, creating lists and using spell check. ● Employ a word processing program to insert and format digital pictures. ● Create and maintain digital portfolio ● Create flowcharts for sequencing information
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<p>Enduring Understandings: Students will understand...</p> <ul style="list-style-type: none"> ● How to create word processing documents. ● How to use tools in word processing programs to insert images, text, tables, etc. ● How to use media sources to research scientific information. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> ● How can we create a document for informational writing or opinion writing? ● What tools can we use to format and enhance a document? ● How can we insert images, text, flowcharts, and tables into documents?
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<ul style="list-style-type: none"> • How to create a digital portfolio to curate student work and reflect on performance. 	<ul style="list-style-type: none"> • How can we create digital portfolios to curate artifacts and reflect on our work?
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Core Instructional & Supplemental Materials
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<p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> • Create model of food chain with flowchart tools • Google for research purposes • Various iPad apps for digital learning environments • Computer hardware • Computer programs and software • SmartBoard • Google • KidPix • BrainPopJr. • G-Suite/Google Drive • Gmail • Tools and videos code.org video library • www.lbischools.org • www.scholastic.com • Tools for Creating Digital Student Portfolios Edutopia • The Complete Guide To Student Digital Portfolios CampusPress • Digital Portfolios Creative Educator • www.readingeggs.com 	<p>Varied Levels of Text:</p> <ul style="list-style-type: none"> • Heinz, B. (2006). Butternut hollow pond. • Lauber, P. (2016). Who eats what? Food chains and food webs. • Slade, S. (2010). What if there were no gray wolves?
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Accommodations/Modifications

<p>English Language Learners:</p> <ul style="list-style-type: none"> • Collaborate with ELL department to make necessary modifications for students • Provide translated material • Provided differentiation for students as needed • Use student helpers and cooperative learning • Use visual aids • Rephrase vocabulary • Allow for alternate forms of responses <p>Special Education/504 Plans/Students with Disabilities:</p> <ul style="list-style-type: none"> • Provide differentiated instruction as needed
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- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Shorten assignments to focus on mastery of key concepts
- Restate, reword and clarify directions
- Lessen the amount of information presented
- Allow for alternate forms of responses
- Increase eye contact
- Maintain close proximity
- Attention techniques

Students at Risk of Failure:

- Make sure children feel welcome and comfortable while being discrete
- Help to provide basic needs while the child is in school (food, clothing, etc)
- Provide resources for basic needs outside of school (medical, shelter, food, etc)
- Pair with adult mentor or buddy
- Rephrase vocabulary
- Provide structure and adhere to a consistent daily routine with clear and concise rules
- Facilitate successful experiences

Economically Disadvantaged:

- Provide clear, achievable expectations, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Perspective and experiences of the children need to be considered
- Create ways for students to share their emotions
- Give every student the same opportunity for success.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Daily affirmations
- Asking to hear students' hopes and offering reinforcements of those hopes
- Telling students why they can succeed

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Recognize native languages and cultures
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
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Gifted and Talented

- Peer mediated strategies
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Presentation accommodations allow a student to:

- Vary the method of presentation: lecture, small groups, large group, demonstration, individual experimentation
- Explore real world connections
- Use technology tools to enhance content

Response accommodations allow a student to:

- Turn and Talk
- Reward risk taking while encouraging students to think “outside of the box”

Setting accommodations allow a student to:

- Use flexible seating
- Have choice in seating/grouping

Timing accommodations allow a student to:

- Have flexible pacing in terms of content, assignments, and assessments
- Explore extended activities

Scheduling accommodations allow a student to:

- Establish a timeline for completing a project
- Have rigorous Pacing

Organization skills accommodations allow a student to:

- Model executive functioning
- Utilize independent skills practices

Assignment modifications allow a student to:

- Complete enrichment tasks
- Write longer passages on essays and open ended responses including academic vocabulary
- Answer higher order thinking questions
- Cite text evidence
- Create alternate projects or assignments, student developed rubrics, student choice when completing a project or alternate labs

Curriculum modifications provide:

- Topics of interest to the student and/or relevant to how the world works
- Students access to supplemental reading materials matched to individual student lexiles
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- Opportunities to get graded or assessed using a different standard than the one for others

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Unit 3: Interacting with Data	Duration: 10 Days
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Standards/Learning Targets

New Jersey Technology Strands:

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DA: Data & Analysis 8.1.5.DA.1, 8.1.5.DA.2, 8.1.5.DA.3, 8.1.5.DA.5

AP: Algorithms & Programming 8.1.2.AP.1

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EC: Ethics & Culture 8.2.5.EC.1

Primary Interdisciplinary Connections:

English Language Arts

RI.5.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

RI.5.10 By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently.

Science

5-ESS1-2 Represent data in graphical displays to reveal patterns of daily changes in length

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and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

Career Readiness, Life Literacies, and Key Skills

9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.

9.2.5.CAP.2: Identify how you might like to earn an income.

9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations

9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions.

9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue.

9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity

9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.

9.4.5.CT.2: Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem.

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9.4.5.DC.7: Explain how posting and commenting in social spaces can have positive or negative consequences.

9.4.5.IML.1: Evaluate digital sources for accuracy, perspective, credibility and relevance.

9.4.5.IML.2: Create a visual representation to organize information about a problem or issue.

9.4.5.IML.3: Represent the same data in multiple visual formats in order to tell a story about the data.

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- 9.4.5.IML.4: Determine the impact of implicit and explicit media messages on individuals, groups, and society as a whole.
- 9.4.5.IML.5: Distinguish how media are used by individuals, groups, and organizations for varying purposes.
- 9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions.
- 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social.
- 9.4.5.TL.1: Compare the common uses of at least two different digital tools and identify the advantages and disadvantages of using each.
- 9.4.5.TL.2: Sort and filter data in a spreadsheet to analyze findings.
- 9.4.5.TL.3: Format a document using a word processing application to enhance text, change page formatting, and include appropriate images, graphics, or symbols.
- 9.4.5.TL.4: Compare and contrast artifacts produced individually to those developed collaboratively.
- 9.4.5.TL.5: Collaborate digitally to produce an artifact.

Evidence of Student Learning

Formative Tasks:

- Teacher Observation
- Teacher Checklist
- Verbal question & answer
- Self-evaluation of performance and progress
- Class discussions
- Peer editing
- Self-evaluation

Alternative Assessments:

- End of Unit Project
- Portfolios
- Performance Tasks

Summative Assessments:

- Student participation
- Student presentation of completed project

Benchmark Assessments:

- Baseline SGO
- Mid-year SGO
- End of year SGO

Knowledge & Skills

Unit Objectives:

Students will know...

- How to use spreadsheet software or utilize Google Docs to compile data from shadow lengths

Unit Objectives:

Students will be able to...

- How to use spreadsheet data to create graphs
- How to evaluate the best representation of information by

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<ul style="list-style-type: none"> How to create a graph and assess which graphic representation is the best way in which to present information. 	<p>creating multiple graphs using the same information to select the best representation of data.</p>
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<p>Enduring Understandings: Students will understand that...</p> <ul style="list-style-type: none"> Identifying patterns in data can help us make predictions and write explanations A data scientist is someone who collects data, analyzes it, and makes decisions using large amounts of data, or information. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> How can we use technology to create a graph for analyzing and interpreting data? How can we use data to predict shadow lengths? What is a data scientist and what do they do?
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Core Instructional & Supplemental Materials

<p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> Use World Book Online and other teacher approved web resources to demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums). KidPix BrainPopJr. G-Suite GMail Tools and videos code.org video library www.lbischools.org www.scholastic.com www.readingeggs.com 	<p>Varied Levels of Text:</p> <ul style="list-style-type: none"> <u>Florence the Data Scientist and Her Magical Bookmobile</u> by Ryan Kelly <u>Shadowman</u> by G. Zopfi <u>But It's Just a Game</u> by Julia Cook <u>The Technology Tail</u> by Julia Cook <u>Chicken Clicking</u> by Jeanne Willis <u>Troll Stinks</u> by Jeanne Willis
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Accommodations/Modifications

<p>English Language Learners</p> <ul style="list-style-type: none"> Collaborate with ELL department to make necessary modifications for students Provide translated material Provided differentiation for students as needed Use student helpers and cooperative learning Use visual aids Rephrase vocabulary Allow for alternate forms of responses <p>Special Education/504 Plans/Students with Disabilities:</p> <ul style="list-style-type: none"> Provide differentiated instruction as needed

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- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Shorten assignments to focus on mastery of key concepts
- Restate, reword and clarify directions
- Lessen the amount of information presented
- Allow for alternate forms of responses
- Increase eye contact
- Maintain close proximity
- Attention techniques
- Sound, mouse or screen modifications

Students at Risk of Failure:

- Make sure children feel welcome and comfortable while being discrete
- Help to provide basic needs while the child is in school (food, clothing, etc)
- Provide resources for basic needs outside of school (medical, shelter, food, etc)
- Pair with adult mentor or buddy
- Rephrase vocabulary
- Provide structure and adhere to a consistent daily routine with clear and concise rules
- Facilitate successful experiences

Economically Disadvantaged:

- Provide clear, achievable expectations, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Perspective and experiences of the children need to be considered
- Create ways for students to share their emotions
- Give every student the same opportunity for success.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Daily affirmations
- Asking to hear students' hopes and offering reinforcements of those hopes
- Telling students why they can succeed

Culturally Diverse:

- Involve families in student learning
- Provide social/emotional support
- Recognize native languages and cultures
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary

Gifted and Talented

- Peer mediated strategies
- Cooperative learning groups

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- Differentiated instruction

Presentation accommodations allow a student to:

- Vary the method of presentation: lecture, small groups, large group, demonstration, individual experimentation
- Explore real world connections
- Use technology tools to enhance content

Response accommodations allow a student to:

- Turn and Talk
- Reward risk taking while encouraging students to think “outside of the box”

Setting accommodations allow a student to:

- Use flexible seating
- Have choice in seating/grouping

Timing accommodations allow a student to:

- Have flexible pacing in terms of content, assignments, and assessments
- Explore extended activities

Scheduling accommodations allow a student to:

- Establish a timeline for completing a project
- Have rigorous Pacing

Organization skills accommodations allow a student to:

- Model executive functioning
- Utilize independent skills practices

Assignment modifications allow a student to:

- Complete enrichment tasks
- Write longer passages on essays and open ended responses including academic vocabulary
- Answer higher order thinking questions
- Cite text evidence
- Create alternate projects or assignments, student developed rubrics, student choice when completing a project or alternate labs

Curriculum modifications provide:

- Topics of interest to the student and/or relevant to how the world works
- Students access to supplemental reading materials matched to individual student lexiles
- Opportunities for open-ended, self-directed activities
- Opportunities to get graded or assessed using a different standard than the one for others

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Unit 5: Coding	Duration: 10 Days
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Standards/Learning Targets

New Jersey Technology Strands:

- 8.1 Computer Science: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- 8.2 Design Thinking: All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.

New Jersey Technology Standards:

8.1 Computer Science: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.

CS: Computer Science 8.1.5.CS.1

NI: Network and Internet 8.1.5.NI.1

IC: Impacts of Computing 8.1.5.IC.1

DA: Data & Analysis 8.1.5.DA.1, 8.1.5.DA.2

AP: Algorithms & Programming 8.1.5.AP.1, 8.1.5.AP.2, 8.1.5.AP.3, 8.1.5.AP.4, 8.1.5.AP.5, 8.1.5.AP.6

8.2 Design Thinking: All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.

ED: Engineering Design 8.2.5.ED.1, 8.2.5.ED.2

ITH: Interaction of Technology and Humans 8.2.5.ITH.1

NT: Nature of Technology 8.2.5.NT.1

ETW: Effects of Technology on the Natural World 8.2.5.ETW.1, 8.2.5.ETW.3

EC: Ethics & Culture 8.2.5.EC.1

Primary Interdisciplinary Connections:

English Language Arts

RI.5.4 Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*.

RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

Science

5-ESS1-2* Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. *NGSS Performance Expectation notes specify the inclusion of moon patterns

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5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

5-ESS2-1 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

21st Century Themes/Career Readiness:

- Demonstrate creativity and innovation.
- Utilize critical thinking to make sense of problems and persevere in solving them.
- Use technology to enhance productivity, increase collaboration and communicate effectively.
- Consider the environmental, social and economic impacts of decisions
- Act as a responsible and contributing community member and student

21st Century Life and Career Standards:

- 9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions.
- 9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue.
- 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity
- 9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.
- 9.4.5.CT.2: Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem.
- 9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems
- 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
- 9.4.5.DC.1: Explain the need for and use of copyrights.
- 9.4.5.DC.2: Provide attribution according to intellectual property rights guidelines using public domain or creative commons media.
- 9.4.5.DC.3: Distinguish between digital images that can be reused freely and those that have copyright restrictions.
- 9.4.5.DC.4: Model safe, legal, and ethical behavior when using online or offline technology.
- 9.4.2.CT.1: Gather information about an issue, such as climate change, and

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collaboratively brainstorm ways to solve the problem

- 9.4.2.DC.7: Describe actions peers can take to positively impact climate change
- 9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue
- 9.4.2.IML.2: Represent data in a visual format to tell a story about the data.
- 9.4.5.DC.5: Identify the characteristics of a positive and negative online identity and the lasting implications of online activity.
- 9.4.5.DC.6: Compare and contrast how digital tools have changed social interactions.
- 9.4.5.IML.1: Evaluate digital sources for accuracy, perspective, credibility and relevance.
- 9.4.5.IML.2: Create a visual representation to organize information about a problem or issue.
- 9.4.5.IML.3: Represent the same data in multiple visual formats in order to tell a story about the data.
- 9.4.5.IML.4: Determine the impact of implicit and explicit media messages on individuals, groups, and society as a whole.
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Evidence of Student Learning

Formative Tasks:

- Teacher Observation
- Teacher Checklist
- Verbal question & answer
- Self-evaluation of performance and

Alternative Assessments:

- End of Unit Project
- Portfolios
- Performance Tasks

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<p>progress</p> <ul style="list-style-type: none"> • Class discussions • Peer editing • Self-evaluation 	
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<p>Summative Assessments:</p> <ul style="list-style-type: none"> • Student participation • Student presentation of completed project 	<p>Benchmark Assessments:</p> <ul style="list-style-type: none"> • Baseline SGO • Mid-year SGO • End of year SGO
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Knowledge & Skills

<p>Unit Objectives: Students will know...</p> <ul style="list-style-type: none"> • How to create a plan for solving a task. • Sequence steps can be expressed as an algorithm that a computer can process. • Complex steps can be broken down into simpler instructions. • How computers follow precise sequences of steps that automate tasks. • Environmental decisions involve complex cause and effect relationships. 	<p>Unit Objectives: Students will be able to...</p> <ul style="list-style-type: none"> • Identify the problem to be solved • Use appropriate vocabulary to solve the problem. • Solve an assigned puzzle by step by step directions. • Be able to debug a program step by step. • Understand and create an algorithm to solve a task • Create an animation to show change over time • Demonstrate cause and effect relationships in making environmental decisions
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<p>Enduring Understandings: Students will understand that...</p> <ul style="list-style-type: none"> • Algorithms are sequential steps that computers follow to solve tasks. • Animations can be designed and programmed to show change over time • Cause and effect relationships are involved in making environmental decisions. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> • What is the right tool to use? • How can I use my digital tools and skills in new situations? • How do I follow directions on a digital device? • How do I add a sequence of steps? • Can I describe the sequence of steps I added to get to the end result? • What is a graphic organizer? • How do we make decisions about protecting the environment?
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	<ul style="list-style-type: none"> • How do we use algorithms to solve tasks?
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Core Instructional & Supplemental Materials
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<p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> • Create an algorithm to figure contaminated surfaces Decontamination Algorithm Tech at Home Decontamination Algorithm (Support lesson with Safe surgery checklist) • Create algorithm to solve a jigsaw puzzle Puzzling Procedure • Create a board game about the solar system Get in the Game! • Create animation of moon phases using Scratch LESSON PLAN: Demonstrating Change Over Time Using Moon Phases • Responsible Reservoirs • Create computational artifact (animation, image, picture, audio, video or multimedia presentation) • Research solutions to climate change or effects on Earth's systems such as air pollution and create collaborative digital presentation • Calculate daily water usage Water Q&A: How much water do I use at home each day? • Teach About Climate Change • NASA Climate Kids • Recycling Project • Protecting open spaces project • Cleaning waterways project • Collaboration with subject matter teachers and specialists. • Use World Book Online and other teacher approved web resources to demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums). • Tools and videos Code.org video library • KidPix 	<p>Varied Levels of Text:</p> <ul style="list-style-type: none"> • <i>You Can't Dance to These Rhythms: What Are Algorithms?</i> by Brian P. Cleary • <i>I Can Code: If/Then</i> by Vicky Fang • <i>Coding to Kindness</i> by Valerie Sousa • <i>Adi Sorts With Variables</i> by Caroline Karanja • <i>Nothing Loopy About This: What Are Loops and Conditionals?</i> By Brian P. Cleary • <i>Gabi's If/Then Garden</i> by Caroline Karanja • <i>I Can Code: And/Or</i> by Vicky Fang • <i>Invent-a-Pet</i> by Vicky Fang • <i>Adi's Perfect Patterns and Loops</i> by Caroline Karanja
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- BrainPopJr.
- Google Earth
- G-Suite
- GMail
- www.scholastic.com
- www.readingeggs.com
- [Just for Kids: What's Climate Change? And What Can I Do?](#)
- [Learning and Teaching about the Environment | US EPA](#)

Accommodations/Modifications

English Language Learners

- Collaborate with ELL department to make necessary modifications for students
- Provide translated material
- Provided differentiation for students as needed
- Use student helpers and cooperative learning
- Use visual aids
- Rephrase vocabulary
- Allow for alternate forms of responses

Special Education/504 Plans/Students with Disabilities:

- Provide differentiated instruction as needed
- Follow all IEP modifications/504 plan
- Provide manipulatives or the opportunity to draw solution strategies
- Shorten assignments to focus on mastery of key concepts
- Restate, reword and clarify directions
- Lessen the amount of information presented
- Allow for alternate forms of responses
- Increase eye contact
- Maintain close proximity
- Attention techniques
- Screen, mouse and/or sound Modification
- Adaptive resources

Students at Risk of Failure:

- Make sure children feel welcome and comfortable while being discrete
- Help to provide basic needs while the child is in school (food, clothing, etc)
- Provide resources for basic needs outside of school (medical, shelter, food, etc)
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- Rephrase vocabulary

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Content Area: Computer Science and Design Thinking

- Provide structure and adhere to a consistent daily routine with clear and concise rules
- Facilitate successful experiences

Economically Disadvantaged:

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- Build a safe and nurturing atmosphere
- Perspective and experiences of the children need to be considered
- Create ways for students to share their emotions
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- Telling students why they can succeed

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- Recognize native languages and cultures
- Respect cultural traditions
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- Cooperative learning groups
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Presentation accommodations allow a student to:

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Setting accommodations allow a student to:

- Use flexible seating
- Have choice in seating/grouping

Timing accommodations allow a student to:

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- Have flexible pacing in terms of content, assignments, and assessments
- Explore extended activities

Scheduling accommodations allow a student to:

- Establish a timeline for completing a project
- Have rigorous Pacing

Organization skills accommodations allow a student to:

- Model executive functioning
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Assignment modifications allow a student to:

- Complete enrichment tasks
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