



Content Area: Technology

Course Title: Technology

Grade Level: 7

Unit Plan 1 Digital Citizenship and Cyber Safety	Pacing Guide 5 - 10 Days
Unit Plan 2 Using Technology to Solve Global Issues	Pacing Guide 10 Days
Unit Plan 3 Data Analysis	Pacing Guide 10 Days
Unit Plan 4 Systems and Technology Resources	Pacing Guide 10 Days
Unit Plan 5 Programming	Pacing Guide 10 Days

Original Adoption: April 16, 2015

Revisions: Summer 2022

Board Approved: August 17, 2022



Unit 1 Overview

Content Area: Technology

Unit Title: Digital Citizenship and Cybersafety

Target Course/Grade Level: 7

Pacing Guide: 5-10 days

Unit Summary:

Students will develop technology based projects to demonstrate an understanding of proper use of online technology as well as the appropriate use of social media.

Primary Interdisciplinary Connections:

[NJSLs.ELA-LITERACY.W.7.6](#)

Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.

[NJSLs.ELA-LITERACY.W.7.7](#)

Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.

[NJSLs.ELA-LITERACY.W.7.8](#)

Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

[NJSLs.ELA-LITERACY.SL.7.2](#)

Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.

[NJSLs.ELA-LITERACY.SL.7.5](#)

Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

[NJSLs.MATH.PRACTICE.MP1](#) Make sense of problems and persevere in solving them.



CSS.MATH.PRACTICE.MP3 Construct viable arguments and critique the reasoning of others.

Companion Standards:

Anchor Standards for Reading

NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words

NJSLSA.R8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

NJSLSA.R9. Analyze and reflect on how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

Progress Indicators Reading Science and Technical Subjects

RST.6-8.1. Cite specific textual evidence to support analysis of science and technical texts.

RST.6-8.2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

RST.6-8.7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

Anchor Standards for Writing

NJSLSA.W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

NJSLSA.W6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.



NJSLSA.W8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

NJSLSA.W10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

WHST.6-8.2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

A. Introduce a topic and organize ideas, concepts, and information using text structures (e.g. definition, classification, comparison/contrast, cause/effect, etc.) and text features (e.g. headings, graphics, and multimedia) when useful to aiding comprehension.

B. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

C. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.

D. Use precise language and domain-specific vocabulary to inform about or explain the topic.

E. Establish and maintain a formal/academic style, approach, and form.

F. Provide a concluding statement or section that follows from and supports the information or explanation presented.

WHST.6-8.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

WHST.6-8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration

WHST.6-8.8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

21st Century Themes:

Career Ready Practices

CRP1. Act as a responsible and contributing citizen and employee.

CRP2. Apply appropriate academic and technical skills.

CRP3. Attend to personal health and financial well-being.

CRP4. Communicate clearly and effectively and with reason.

CRP5. Consider the environmental, social and economic impacts of decisions.



CRP7. Employ valid and reliable research strategies.
 CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
 CRP9. Model integrity, ethical leadership and effective management.

Learning Targets

Technology Standards:

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

D. Digital Citizenship: *Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.*

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

B. Technology and Society: *Knowledge and understanding of human, cultural and societal values are fundamental when designing technology systems and products in the global society.*

CPI #	Cumulative Progress Indicator (CPI)
8.1.8.D.1	Understand and model appropriate online behaviors related to cyber safety, cyber bullying, cyber security, and cyber ethics including appropriate use of social media.
8.1.8.D.2	Demonstrate the application of appropriate citations to digital content.
8.1.8.D.3	Demonstrate an understanding of fair use and Creative Commons to intellectual property.
8.1.8.D.4	Assess the credibility and accuracy of digital content.
8.1.8.D.5	Understand appropriate uses for social media and the negative consequences of misuse.
8.2.8.B.6	Compare and contrast the different types of intellectual property including copyrights, patents and trademarks.



<p>Unit Essential Questions</p> <p>Why is it important to be safe in a digital environment? Why is it important to protect licensed material? Does ownership matter? What does it mean to be online appropriate? What is the price of “free”? How do you evaluate the credibility of online resources? What is misuse?</p>	<p>Unit Enduring Understandings <i>Students will understand that...</i></p> <p>Cyber Safety and appropriate online practices as well as an understanding of digital ownership is important.</p> <p>It is important to practice good digital citizenship.</p>
<p>Unit Objectives <i>Students will know...</i></p> <p>Creative Commons licensing standards Appropriate citation formats Basic Copyright Laws Where they leave their Digital Footprint Different types of intellectual property which includes copyright, patents and trademarks</p>	<p>Unit Objectives <i>Students will be able to...</i></p> <p>Appropriately cite sources Use Creative Commons Licensing Standards Understand and apply basic copyright laws Use social media appropriately and understand the consequences of misuse Assess the credibility and accuracy of digital content</p>



Evidence of Learning	
Formative Assessments: <ul style="list-style-type: none"> ● Pretest/Post test ● Observation ● Class Participation ● Think-Pair-Share Summative Assessments: <ul style="list-style-type: none"> ● Quiz ● Unit Projects 	Alternative Assessments: <ul style="list-style-type: none"> ● Do-Now ● Exit Tickets ● Classroom Games ● Self-assessment ● Feedback from home form Suggested Benchmark: <ul style="list-style-type: none"> ● Quarterly Exam
Modifications	
English Language Learners: <ul style="list-style-type: none"> ● Provide clear and specific directions ● Allow for alternate forms of responses-drawing or speaking instead of writing to demonstrate knowledge when you are not specifically assessing writing ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions 	Gifted and Talented: <ul style="list-style-type: none"> ● Extension activities ● Opportunities for Critical Thinking ● Problem Solving/Design Challenges ● Technology Integration ● Student Choice Activities ● Student Driven Activities ● Group Projects ● Tiered Activities
Special Education: <ul style="list-style-type: none"> ● Utilize graphic organizers to help provide a purpose for reading and increase comprehension ● Assign peer tutor ● Provide clear and specific directions ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions 	504: <ul style="list-style-type: none"> ● Utilize graphic organizers to help provide a purpose for reading and increase comprehension ● Assign peer tutor ● Provide clear and specific directions ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions
Students at Risk of School Failure: <ul style="list-style-type: none"> ● Extended Time ● Flexible Grouping ● Small Group Instruction ● Peer Buddies ● Tiered Activities ● Manipulatives ● Graphic Organizers 	<ul style="list-style-type: none"> ● Chunking Information ● Scaffolded Questioning ● Modified Assignments ● Preferential Seating ● Visual Cues/Modeling ● Technology Integration ● Assistive Technology



Cyber Safety Pre Test
Cyber Safety Post Test

Use image searches with advanced image tools that are labeled for non-commercial use.

Copyright Kids

Instructional Materials, Equipment needed, Teacher Resources

Whenever possible, provide students with examples of people in tech who are members of minority groups such as the LGBTQ community and people with disabilities.

The research tool in a google docs
EasyBib Add-on in Google Docs

Citing Online and Social Media Sources-Newsome
Computer Rules Prevent Problems!
Danger Online! Educating Kids and Parents About Internet Safety
How Can Schools Make Better Use of the Internet?
5 day Privacy Challenge (for adults, but modify for students)
Netsmartz Social Media Video

Common Sense Media
Creative Commons
Common Sense Media
What Is Cyberbullying | StopBullying.gov
Copyright Kids
Ten Commandments of Computer Ethics
NS Teens
Cyber Citizen

1. Thou shalt not use a computer to harm other people.
2. Thou shalt not interfere with other people's computer work.
3. Thou shalt not snoop around in other people's files.
4. Thou shalt not use a computer to steal.
5. Thou shalt not use a computer to bear false witness.
6. Thou shalt not copy or use proprietary software for which you have not paid.
7. Thou shalt not use other people's computer resources without authorization or proper compensation.
8. Thou shalt not appropriate other people's intellectual output.
9. Thou shalt think about the social consequences of the program you write or the system you



design.

10. Thou shalt use a computer in ways that show consideration of and respect for your fellow humans. Copyright: [Computer Ethics Institute](#) Author: [Dr. Ramon C. Barquin](#)

Teacher Notes:

"If we provide positive images and effectively communicate ethical values in all areas of their lives, those values will be reflected in the technological environment as well. How we teach kids to view themselves and their use of technology at this level is what they will carry with them into adulthood"



Unit 2 Overview

Content Area: Technology

Unit Title: Using Technology to Solve Global Issues

Target Course/Grade Level: Technology 7th Grade

Pacing Guide: 10 days

Unit Summary: Students will work in teams each quarter to identify their role in global issues and create a personalized learning portfolio for use in Language Arts in May for their Research Simulation Task.

Primary Interdisciplinary Connections:

[NJSLs.ELA-LITERACY.RL.7.7](#)

Compare and contrast a written story, drama, or poem to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, or camera focus and angles in a film).

[NJSLs.ELA-LITERACY.W.7.6](#)

Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.

[NJSLs.ELA-LITERACY.W.7.7](#)

Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.

[NJSLs.ELA-LITERACY.W.7.8](#)

Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

[NJSLs.ELA-LITERACY.SL.7.1](#)

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

[NJSLs.ELA-LITERACY.SL.7.2](#)

Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.



NJSLS.ELA-LITERACY.SL.7.5

Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

[NJSLS.MATH.PRACTICE.MP1](#) Make sense of problems and persevere in solving them.

NJSLS.MATH.PRACTICE.MP3 Construct viable arguments and critique the reasoning of others.

NJSLS.MATH.PRACTICE.MP5 Use appropriate tools strategically.

Companion Standards

Anchor Standards for Reading

NJSLSA.R6. Assess how point of view or purpose shapes the content and style of a text.

NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

NJSLSA.R8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

NJSLSA.R9. Analyze and reflect on how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

Progress Indicators for Reading Science and Technical Subjects

RST.6-8.7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.



Anchor Standards for Writing

NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

NJSLSA.W2 Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

NJSLSA.W3 Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

NJSLSA.W4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

NJSLSA.W5. Develop and strengthen writing as needed by planning, revising, editing, rewriting or trying a new approach.

NJSLSA.W6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

NJSLSA.W8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

NJSLSA.W10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Progress Indicators for Writing History, Science, and Technical Subjects

WHST.6-8.2. Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

- A.** Introduce a topic and organize ideas, concepts, and information using text structures (e.g.definition, classification, comparison/contrast, cause/effect, etc.) and text features (e.g.headings, graphics, and multimedia) when useful to aiding comprehension.
- B.** Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
- C.** Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
- D.** Use precise language and domain-specific vocabulary to inform about or explain the topic.
- E.** Establish and maintain a formal/academic style, approach, and form.
- F.** Provide a concluding statement or section that follows from and supports the



information or explanation presented.

WHST.6-8.4. Produce clear and coherent writing in which the development, organization, voice, and style are appropriate to task, purpose, and audience.

WHST.6-8.5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.

WHST.6-8.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

WHST.6-8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

WHST.6-8.8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

WHST.6-8.9. Draw evidence from informational texts to support analysis, reflection, and research.

21st Century Themes:

9.1 21st-Century Life & Career Skills All students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures

9.1.4.A.1

Recognize a problem and brainstorm ways to solve the problem individually or collaboratively.

9.1.4.A.2

Evaluate available resources that can assist in solving problems.

9.1.4.A.3

Determine when the use of technology is appropriate to solve problems.

9.1.12.A.3

Assess how a variety of problem-solving strategies are being used to address solutions to global problems by participating in online discussions with peers from other countries.



Career Ready Practices

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

Learning Targets

Technology Standards:

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

- A. Technology Operations and Concepts:** *Students demonstrate a sound understanding of technology concepts, systems and operations.*
- B. Creativity and Innovation:** *Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.*
- C. Communication and Collaboration:** *Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.*
- E: Research and Information Fluency:** *Students apply digital tools to gather, evaluate, and use information.*

CPI #	Cumulative Progress Indicator (CPI)
8.1.8.A.3	Use and/or develop a simulation that provides an environment to solve a real world problem or theory.
8.1.8.B.1	Synthesize and publish information about a local or global issue or event (ex. telecollaborative project, blog, school web).
8.1.8.C.1	Collaborate to develop and publish work that provides perspectives on a global problem for discussions with learners from other countries.
8.1.8.E.1	Effectively use a variety of search tools and filters in professional public databases to find information to solve a real world problem.



9.4.8.DC.8	Explain how communities use data and technology to develop measures to respond to effects of climate change (e.g., smart cities).
9.4.8.IML.7	Use information from a variety of sources, contexts, disciplines, and cultures for a specific purpose (e.g., 1.2.8.C2a, 1.4.8.CR2a, W.5.8, 6.1.8.GeoSV.3.a, 6.1.8.CivicsDP.4.b, 7.1.NH. IPRET.8).

<p>Unit Essential Questions</p> <p>Do problems need to be solved? What is our impact? Can one person make a difference? What societal needs exist today? How can technology address the needs of society?</p>	<p>Unit Enduring Understandings</p> <p><i>Students will understand that...</i></p> <p>They play a specific role in society and their impact is evidenced by their global footprint.</p> <p>How technology impacts our lives, the environment, and the world.</p>
<p>Unit Objectives</p> <p><i>Students will know...</i></p> <p>How to use tools to conduct research The difference between fiction and non-fiction How to create a learning portfolio How to share documents digitally</p>	<p>Unit Objectives</p> <p><i>Students will be able to...</i></p> <p>Use resources to make better decisions</p> <p>Describe how resources such as energy, time, tools, people, and capital contribute to a technological product or system</p>

Evidence of Learning	
<p>Formative Assessments:</p> <ul style="list-style-type: none"> ● Pretest/Post test ● Observation ● Class Participation ● Think-Pair-Share <p>Summative Assessments:</p> <ul style="list-style-type: none"> ● Quiz ● Unit Projects 	<p>Alternative Assessments:</p> <ul style="list-style-type: none"> ● Do-Now ● Exit Tickets ● Classroom Games ● Self-assessment ● Feedback from home form <p>Suggested Benchmark:</p> <ul style="list-style-type: none"> ● Quarterly Exam
Modifications	
<p>English Language Learners:</p> <ul style="list-style-type: none"> ● Provide clear and specific directions 	<p>Gifted and Talented:</p> <ul style="list-style-type: none"> ● Extension activities



<ul style="list-style-type: none"> ● Allow for alternate forms of responses-drawing or speaking instead of writing to demonstrate knowledge when you are not specifically assessing writing ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions 	<ul style="list-style-type: none"> ● Opportunities for Critical Thinking ● Problem Solving/Design Challenges ● Technology Integration ● Student Choice Activities ● Student Driven Activities ● Group Projects ● Tiered Activities
<p>Special Education:</p> <ul style="list-style-type: none"> ● Utilize graphic organizers to help provide a purpose for reading and increase comprehension ● Assign peer tutor ● Provide clear and specific directions ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions 	<p>504:</p> <ul style="list-style-type: none"> ● Utilize graphic organizers to help provide a purpose for reading and increase comprehension ● Assign peer tutor ● Provide clear and specific directions ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions
<p>Students at Risk of School Failure:</p> <ul style="list-style-type: none"> ● Extended Time ● Flexible Grouping ● Small Group Instruction ● Peer Buddies ● Tiered Activities ● Manipulatives ● Graphic Organizers 	<ul style="list-style-type: none"> ● Chunking Information ● Scaffolded Questioning ● Modified Assignments ● Preferential Seating ● Visual Cues/Modeling ● Technology Integration ● Assistive Technology

Students will curate two 2 pieces of nonfiction literature and a video to be used as part of a portfolio for a May Language Arts classroom Research Simulation Task (RST) in keeping with the theme of solving global problems.

Students may create a blog (for example, Blogger or epals from Smithsonian, a competition with a nice structure for students as well as opportunities to make global partnerships. It's free. You could even co-plan with a science teacher for continuity of the lesson...)

Instructional Materials, Equipment needed, Teacher Resources

Whenever possible, provide students with examples of people in tech who are members of



minority groups such as the LGBTQ community and people with disabilities

Digital Tools for Presenting Information:

Web page development- Google Sites - NEW

Google Slides

Research w/ documentation using Add-on EasyBib

Logo - YouiDraw, Logo Creator, Adobe Spark or Illustrator, Pixlr Editor.

Inspirational Posters

Video Editing- Wevideo Stupeflix

Game Show - Slide Powerpoint

Suggested topics for research project:

GLOBAL WATER CRISIS

Many communities throughout the world are facing a shortage of clean, usable water. During this assessment, you will read three texts about possible solutions to the freshwater crisis.

Global Water Crisis- text resources for RST

ASSESSMENT: You have read three texts about ways to address the shortage of clean water, which is a problem for many communities in the world.

The three texts are:

- “Beyond Thirst: The Global Water Crisis” by Kathiann M. Kowalski
- “You Are Drinking What?” by Paul Kix
- “Desalination”

Write an essay that argues for what you think are the three most important factors to consider when choosing a possible solution for providing clean water. Be sure to support your argument with claims that are developed with clear reasons and relevant evidence from the three texts. Be sure to follow the conventions of standard written English.

Example GoFundMe accounts to show how technology can be used to combat this global issue:

example 1 GoFundMe

example 2 GoFundMe

EDUCATING THE WORLD-FEEDING EDUCATIONALLY HUNGRY KIDS

Video-Sugata Mitra-The child-driven education TED talk

Hole-in-the-Wall - Beginnings

Personal Technology in the Classroom--Research and argue for or against cell phones in our



classrooms.

Teacher Notes:



Unit 3 Overview

Content Area: Technology

Unit Title: Data Analysis

Target Course/Grade Level: 7

Pacing Guide: 10 days

Unit Summary:

Students will explore local issues and create a form to analyze data collected. Students will use the data to give solutions to a problem.

Primary Interdisciplinary Connections:

NJSLS.ELA-LITERACY.W.7.6

Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.

NJSLS.ELA-LITERACY.W.7.7

Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.

[NJSLS.ELA-LITERACY.W.7.8](#)

Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

NJSLS.MATH.PRACTICE.MP3 Construct viable arguments and critique the reasoning of others.

[NJSLS.MATH.PRACTICE.MP4](#) Model with mathematics.

NJSLS.MATH.PRACTICE.MP5 Use appropriate tools strategically.

NJSLS.MATH.CONTENT.7.SP.A.1

Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.



NJSLS.MATH.CONTENT.7.SP.A.2

Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*

Companion Standards:

Anchor Standards for Reading

NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

NJSLSA.R4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

NJSLSA.R8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

NJSLSA.R9. Analyze and reflect on how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

Progress Indicators for Reading Science and Technical Subjects

RST.6-8.1. Cite specific textual evidence to support analysis of science and technical texts.

RST.6-8.6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.

RST.6-8.7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.



RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

Anchor Standards for Writing

NJLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

NJLSA.W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

NJLSA.W3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

NJLSA.W4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

NJLSA.W5. Develop and strengthen writing as needed by planning, revising, editing, rewriting or trying a new approach.

NJLSA.W6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

Progress Indicators for Writing History, Science, and Technical Subjects

WHST.6-8.4. Produce clear and coherent writing in which the development, organization, voice, and style are appropriate to task, purpose, and audience.

WHST.6-8.5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.

WHST.6-8.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

WHST.6-8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

WHST.6-8.8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.



WHST.6-8.9. Draw evidence from informational texts to support analysis, reflection, and research.

21st Century Themes:

Career Ready Practices

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.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Learning Targets

Technology Standards:

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

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

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

F: Critical thinking, problem solving, and decision making: *Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.*

CPI #	Cumulative Progress Indicator (CPI)
8.1.8.A.5	Create a database query, sort and create a report and describe the process, and explain the report results.
8.1.8.F.1	Explore a local issue, by using digital tools to collect and analyze data to identify a solution and make an informed decision.
9.4.8.IML.8	Apply deliberate and thoughtful search strategies to access high-quality information on climate change (e.g., 1.1.8.C1b).



8.1.8.DA.6	Analyze climate change computational models and propose refinements.
9.4.8.CI.1	Assess data gathered on varying perspectives on causes of climate change (e.g., cross-cultural, gender-specific, generational), and determine how the data can best be used to design multiple potential solutions.



<p>Unit Essential Questions</p> <p>How can data be used to create a solution to an issue? What does the data tell about an issue? How can data help you make an informed decision?</p>	<p>Unit Enduring Understandings <i>Students will understand that...</i></p> <p>data can be used to create a solution to a problem.</p> <p>data can help you make an informed decision.</p>
<p>Unit Objectives <i>Students will know...</i></p> <p>How to analyze data and use it to create solutions.</p> <p>How to analyze data and use it to make informed decisions on a topic.</p>	<p>Unit Objectives <i>Students will be able to...</i></p> <p>analyze data collected in forms.</p> <p>use data to make informed decisions on a topic.</p>



Evidence of Learning	
Formative Assessments: <ul style="list-style-type: none"> ● Pretest/Post test ● Observation ● Class Participation ● Think-Pair-Share Summative Assessments: <ul style="list-style-type: none"> ● Quiz ● Unit Projects 	Alternative Assessments: <ul style="list-style-type: none"> ● Do-Now ● Exit Tickets ● Classroom Games ● Self-assessment ● Feedback from home form Suggested Benchmark: <ul style="list-style-type: none"> ● Quarterly Exam
Modifications	
English Language Learners: <ul style="list-style-type: none"> ● Provide clear and specific directions ● Allow for alternate forms of responses-drawing or speaking instead of writing to demonstrate knowledge when you are not specifically assessing writing ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions 	Gifted and Talented: <ul style="list-style-type: none"> ● Extension activities ● Opportunities for Critical Thinking ● Problem Solving/Design Challenges ● Technology Integration ● Student Choice Activities ● Student Driven Activities ● Group Projects ● Tiered Activities
Special Education: <ul style="list-style-type: none"> ● Utilize graphic organizers to help provide a purpose for reading and increase comprehension ● Assign peer tutor ● Provide clear and specific directions ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions 	504: <ul style="list-style-type: none"> ● Utilize graphic organizers to help provide a purpose for reading and increase comprehension ● Assign peer tutor ● Provide clear and specific directions ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions
Students at Risk of School Failure: <ul style="list-style-type: none"> ● Extended Time ● Flexible Grouping ● Small Group Instruction ● Peer Buddies ● Tiered Activities ● Manipulatives ● Graphic Organizers 	<ul style="list-style-type: none"> ● Chunking Information ● Scaffolded Questioning ● Modified Assignments ● Preferential Seating ● Visual Cues/Modeling ● Technology Integration ● Assistive Technology



Student made google forms to be shared digitally and completed by peers.

Instructional Materials, Equipment needed, Teacher Resources

Whenever possible, provide students with examples of people in tech who are members of minority groups such as the LGBTQ community and people with disabilities

Create Forms in Google.

Digital Tools for Presenting Information:

Web page development- Google Sites - NEW

Google Slides

Research w/ documentation using Add-on Easy Bib

Logo - YouiDraw, Logo Creator, Adobe Spark or Illustrator, Pixlr Editor.

Inspirational Posters

Video Editing- We Video Stupiflix

Game Show - Slide Powerpoint

Teacher Notes:

Unit 4 Overview

Content Area: Technology

Unit Title: Systems and Technology Resources

Target Course/Grade Level: 7th Grade Technology

Pacing Guide: 10 days

Unit Summary: Environmentally friendly system design improvements. Imagine the future.

Primary Interdisciplinary Connections:

NJSLS.ELA-LITERACY.W.7.7

Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.



NJSLS.ELA-LITERACY.SL.7.5

Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

NJSLS.MATH.PRACTICE.MP7 Look for and make use of structure.

Companion Standards

Anchor Standards for Reading

NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

NJSLSA.R8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

NJSLSA.R9. Analyze and reflect on how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

Progress Indicators for Reading Science and Technical Subjects

RST.6-8.1. Cite specific textual evidence to support analysis of science and technical texts.

RST.6-8.3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, model, graph, or table).

RST.6-8.8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

RST.6-8.9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

Anchor Standards for Writing

NJSLSA.W7. Conduct short as well as more sustained research projects, utilizing inquiry-based research process, based on focused questions, demonstrating an



understanding of the subject under investigation.

NJSLSA.W9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

Progress Indicators for Writing History, Science, and Technical Subjects

WHST.6-8.4. Produce clear and coherent writing in which the development, organization, voice, and style are appropriate to task, purpose, and audience.

WHST.6-8.5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.

WHST.6-8.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

WHST.6-8.7. Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

WHST.6-8.8. Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; quote or paraphrase the data and conclusions of others, avoiding plagiarism and following a format for citation.

WHST.6-8.9. Draw evidence from informational texts to support analysis, reflection, and research.

21st Century Themes:

Career Ready Practices

CRP6. Demonstrate creativity and innovation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

9.3.IT.12

Demonstrate knowledge of the hardware components associated with information systems.

9.3.IT.6

Describe trends in emerging and evolving computer technologies and their influence on IT practices.

Learning Targets

Technology Standards:

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:



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

A. The Nature of Technology: Creativity and Innovation *Technology systems impact every aspect of the world in which we live.*

CPI #	Cumulative Progress Indicator (CPI)
8.2.8.A.2	Examine a system, consider how each part relates to other parts, and discuss a part to redesign to improve the system.
8.2.8.A.4	Redesign an existing product that impacts the environment to lessen its impact(s) on the environment.
8.2.8.A.5	Describe how resources such as material, energy, information, time, tools, people, and capital contribute to a technological product or system.



<p>Unit Essential Questions</p> <p>How do components interact with each other?</p> <p>How do you investigate a malfunction of a part and its effects on a system?</p> <p>How do you redesign an existing product to lessen its impact on the environment?</p> <p>How is a system created from start to finish?</p>	<p>Unit Enduring Understandings</p> <p><i>Students will understand that...</i></p> <p>Many components make up a system.</p> <p>They have the capability to investigate and understand a system.</p> <p>A system can be improved.</p>
<p>Unit Objectives</p> <p><i>Students will know...</i></p> <p>How to identify parts of a system.</p> <p>How to troubleshoot part of a system.</p> <p>A system can be redesigned and improved.</p>	<p>Unit Objectives</p> <p><i>Students will be able to...</i></p> <p>Identify components of a system.</p> <p>Identify problems in a system.</p> <p>Understand the creation of a system from start to finish.</p>



Evidence of Learning	
Formative Assessments: <ul style="list-style-type: none"> ● Pretest/Post test ● Observation ● Class Participation ● Think-Pair-Share Summative Assessments: <ul style="list-style-type: none"> ● Quiz ● Unit Projects 	Alternative Assessments: <ul style="list-style-type: none"> ● Do-Now ● Exit Tickets ● Classroom Games ● Self-assessment ● Feedback from home form Suggested Benchmark: <ul style="list-style-type: none"> ● Quarterly Exam
Modifications	
English Language Learners: <ul style="list-style-type: none"> ● Provide clear and specific directions ● Allow for alternate forms of responses-drawing or speaking instead of writing to demonstrate knowledge when you are not specifically assessing writing ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions 	Gifted and Talented: <ul style="list-style-type: none"> ● Extension activities ● Opportunities for Critical Thinking ● Problem Solving/Design Challenges ● Technology Integration ● Student Choice Activities ● Student Driven Activities ● Group Projects ● Tiered Activities
Special Education: <ul style="list-style-type: none"> ● Utilize graphic organizers to help provide a purpose for reading and increase comprehension ● Assign peer tutor ● Provide clear and specific directions ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions 	504: <ul style="list-style-type: none"> ● Utilize graphic organizers to help provide a purpose for reading and increase comprehension ● Assign peer tutor ● Provide clear and specific directions ● Provide class notes ahead of time to allow students to preview material and increase comprehension ● Provide extended time ● Simplify written and verbal instructions
Students at Risk of School Failure: <ul style="list-style-type: none"> ● Extended Time ● Flexible Grouping ● Small Group Instruction ● Peer Buddies ● Tiered Activities ● Manipulatives ● Graphic Organizers 	<ul style="list-style-type: none"> ● Chunking Information ● Scaffolded Questioning ● Modified Assignments ● Preferential Seating ● Visual Cues/Modeling ● Technology Integration ● Assistive Technology



Handout listing components to be identified and/or placed properly to recreate system.
Parts of a computer pretest.

Instructional Materials, Equipment needed, Teacher Resources

Whenever possible, provide students with examples of people in tech who are members of minority groups such as the LGBTQ community and people with disabilities

Howstuffworks.com--Computers
Parts of a computer

Systems: Teams select method of how to deliver a package: train, car, boat, drone, plane, truck, additional topics totally available with teacher approval. Describe how resources such as material, energy, information, time, tools, people, and capital contribute to a technological product or system. Students select item to be delivered with team (each team different).

Design an app to optimize resources
Mit app inventor

Teacher Notes:



Unit 5 Overview

Content Area: Technology

Unit Title: Programming

Target Course/Grade Level: Technology 7

Pacing Guide: 10 days

Unit Summary: Students will participate in beginner level coding projects, including the hour of code, to develop/enhance an understanding of computational thinking.

Primary Interdisciplinary Connections:

NJSLS.ELA-LITERACY.W.7.7

Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.

NJSLS.ELA-LITERACY.W.7.8

Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

NJSLS.MATH.PRACTICE.MP1 Make sense of problems and persevere in solving them.

NJSLS.MATH.PRACTICE.MP4 Model with mathematics.

NJSLS.MATH.PRACTICE.MP6 Attend to precision.

NJSLS.MATH.PRACTICE.MP7 Look for and make use of structure.

Companion Standards

Anchor Standards for Reading

NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.



Progress Indicators for Reading Science and Technical Subjects

RST.6-8.3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.7. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Anchor Standards for Writing

NJLSA.W6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

Progress Indicators for Writing History, Science and Technical Subjects

WHST.6-8.5. With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.

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21st Century Themes:

Career Ready Practices

CRP2. Apply appropriate academic and technical skills.

CRP6. Demonstrate creativity and innovation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.



Learning Targets

Technology Standards:

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

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

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

CPI #	Cumulative Progress Indicator (CPI)
8.2.8.E.3	Develop an algorithm to solve an assigned problem using a specified set of commands and use peer review to critique the solution.
8.2.8.E.4	Use appropriate terms in conversation (e.g., programming, language, data, RAM, ROM, Boolean logic terms).



<p>Unit Essential Questions</p> <p>How do computers operate? Does order matter? What do you do when things don't go the way you planned? How does computer science affect our daily lives?</p>	<p>Unit Enduring Understandings <i>Students will understand that...</i></p> <p>Computers operate according to a particular programming language. How computers respond to programming languages.</p>
<p>Unit Objectives <i>Students will know...</i></p> <p>Programming is a sequence of steps (an algorithm) Basic Programming Languages Basic vocabulary words: input, output, the operating system, debug, algorithm programming, language, data, RAM, ROM, Boolean logic terms</p>	<p>Unit Objectives <i>Students will be able to...</i></p> <p>Use computational thinking to problem solve using computer programming Write basic code using a programming language</p>



Evidence of Learning	
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Students at Risk of School Failure: <ul style="list-style-type: none"> ● Extended Time ● Flexible Grouping ● Small Group Instruction ● Peer Buddies ● Tiered Activities ● Manipulatives ● Graphic Organizers 	<ul style="list-style-type: none"> ● Chunking Information ● Scaffolded Questioning ● Modified Assignments ● Preferential Seating ● Visual Cues/Modeling ● Technology Integration ● Assistive Technology



Instructional Materials, Equipment needed, Teacher Resources

When appropriate, provide students with examples of people in tech who are members of minority groups such as the LGBTQ community and people with disabilities

Lesson Plan

Karel the Dog Teaches how to write Javascript
Programming Language Lesson Plan: Code Monkey Game
Active Imagination Lesson Plan: Everyone's Creative
Computer Coding Lesson Plan: Blockly Maze Game
Logo Programming Game Lesson Plan: Turtle Academy
Creative Programming Lesson Plan: 15 Blocks Game
www.code.org
tinyurl.com/TRPDHourofCode
Computer Science Education Week
Hour of Code Lesson Plan
CS Ed Week
Gameblox

Teacher Notes: