

**Califon Public School
Curriculum**



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|--|-------------------|------------------|---------------------------------|
| Subject: Technology | Grade: 4th | Unit #: 1 | Pacing: 1 marking period |
| Unit Title: Computer Science – Part 1 (Computing Systems, Networks, the Internet, & Impacts of Computing) | | | |

OVERVIEW OF UNIT:

Computer Science outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems.

| Unit References | |
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| Big Ideas | Essential Questions |
| <ul style="list-style-type: none"> ● Computing devices may be connected to other devices to form a system as a way to extend their capabilities. ● Software and hardware work together as a system to accomplish tasks (e.g., sending, receiving, processing, and storing units of information). ● Shared features allow for common troubleshooting strategies that can be effective for many systems. ● Information needs a physical or wireless path to travel to be sent and received. ● Distinguishing between public and private information is important for safe and secure online interactions. ● Information can be protected using various security measures (i.e., physical and digital). | <ul style="list-style-type: none"> ● Why is it helpful for computing devices to be able to connect to other devices? ● What is the importance of software and hardware work together? ● How can you develop common troubleshooting strategies? ● How is information sent and received? ● What is the difference between public and private information? ● How can we protect information? ● What drives the development and modification of computing technology? |

- The development and modification of computing technology is driven by individual's needs and wants and can affect individuals differently.

Objectives

- Students will be able to determine the importance of computing devices being able to connect to other devices.
- Students will be able to analyze the importance of software and hardware working together.
- Students will be able to determine common troubleshooting strategies that are effective.
- Students will be able to determine how information is sent and received.
- Students will be able to contrast public and private information.
- Students will be able to describe how they may protect information.
- Students will be able to analyze information to find what drives the development and modification of computing technology.

Assessment

Formative Assessment:

- observation
- self-reflections
- teacher-student conferences

Summative Assessment:

- online quizzes & tests
- projects

Benchmark:

- Unit Pre-Test

Alternative:

- performance tasks
- projects

Key Vocabulary

- computing device
- components
- software
- hardware
- system
- troubleshooting
- transmit

- wired/wireless
- physical/digital security measures
- accessibility
- usability

Resources & Materials

- SMARTBoard
- Teacher-made resources

Technology Infusion

Teacher Technology:

- Chromebook
- Google Classroom
- SmartBoard

Student Technology:

- Google Classroom
- Chromebooks
- Internet Sources

Activities:

- Students will use Internet resources to research various computing technologies and create a visual or presentation that explains how these forms of technology have impacted our lives and what factors influenced these changes.

| Standard | Standard Description |
|------------|--|
| 8.1.5.IC.1 | Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes. |

Interdisciplinary Integration

Activities:

Students will research various computing technologies and create a visual or presentation that explains how these forms of technology have impacted our lives and what factors influenced these changes.

Resources:

- Teacher Vision Cross Curricular Theme Map - <https://www.teachervision.com/teaching-methods/curriculum-planning/7167.html>
- Engineering Go For It! - <http://egfi-k12.org/>
- US Department of Education STEM - <http://www.ed.gov/stem>
- Intel STEM Resource - <http://www.intel.com/content/www/us/en/education/k12/stem.html>
- NASA STEM - <http://www.nasa.gov/audience/foreducators/expeditions/stem/#.VYrO2flViko>
- PBS STEM - <http://www.pbs.org/teachers/stem/#content>
- STEM Works - <http://stem-works.com/activities>
- [What Every Education Should Know About Using Google](#) by Shell Education
- Promoting Literacy in all Subjects by Glencoe - http://www.glencoe.com/sec/teachingtoday/subject/promoting_literacy.phtml
- International Literacy Association Read Write Think - <http://www.readwritethink.org/>

| Standard | Standard Description |
|-----------|--|
| 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.W6 | Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others. |

21st Century Life Skills Standards

Activities:

- Students will research various computing technologies and create a visual or presentation that explains how these forms of technology have impacted our lives and what factors influenced these changes.

| Standard # | Student Learning Objectives |
|-------------|--|
| 9.4.5.IML.1 | Evaluate digital sources for accuracy, perspective, credibility and relevance. |

Careers

Activities:

- Students will research various computing technologies and create a visual or presentation that explains how these forms of technology have impacted our lives and what factors influenced these changes.

| CRP # | Practice |
|-------|--|
| 4 | Communicate clearly and effectively and with reason. |

| Standards | |
|------------|--|
| Standard # | Standard Description |
| 8.1.5.CS.1 | Model how computing devices connect to other components to form a system. |
| 8.1.5.CS.2 | Model how computer software and hardware work together as a system to accomplish tasks. |
| 8.1.5.CS.3 | Identify potential solutions for simple hardware and software problems using common troubleshooting strategies. |
| 8.1.5.NI.1 | Develop models that successfully transmit and receive information using both wired and wireless methods. |
| 8.1.5.NI.2 | Describe physical and digital security measures for protecting sensitive personal information. |
| 8.1.5.IC.1 | Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes. |
| 8.1.5.IC.2 | Identify possible ways to improve the accessibility and usability of computing technologies to address the diverse needs and wants of users. |

| Differentiation | | | |
|---|--|---|--|
| Special Education | English Language Learners (ELL) | Response to Intervention (RTI) | Enrichment |
| <ul style="list-style-type: none"> ● Provide modifications & accommodations as listed in the student's IEP ● Position student near helping peer or have quick access to teacher ● Modify or reduce assignments/tasks ● Reduce length of assignment for different mode of delivery ● Increase one-to-one time ● Prioritize tasks ● Use graphic organizers ● Use online resources for skill building ● Provide teacher notes | <ul style="list-style-type: none"> ● Provide text-to-speech ● Use of translation dictionary or software ● Provide graphic organizers ● NJDOE resources - http://www.state.nj.us/education/aps/cccs/ELL.htm ● Adapt a Strategy – Adjusting strategies for ESL students - http://www.teachersfirst.com/content/esl/adaptstrat.cfm | <ul style="list-style-type: none"> ● Tiered interventions following RTI framework ● Effective RTI strategies for teachers - http://www.specialeducationguide.com/pre-k-12/response-to-intervention/effective-rti-strategies-for-teachers/ ● Interventional Central - http://www.interventioncentral.org/ | <ul style="list-style-type: none"> ● Process should be modified: higher order thinking skills, open-ended thinking, discovery ● Utilize project-based learning for greater depth of knowledge ● Utilize exploratory connections to higher grade concepts ● Contents should be modified: real world problems, audiences, deadlines, evaluations, transformations ● Learning environments should be modified: |

| | | | |
|--|--|--|---|
| <ul style="list-style-type: none">● Use collaborative grouping strategies such as small groups● NJDOE resources - http://www.state.nj.us/education/specialed/ | | | <p>student-centered learning, independence, openness, complexity, groups varied</p> <ul style="list-style-type: none">● NJDOE resources - http://www.state.nj.us/education/aps/cccs/g_and_t_req.htm |
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**Califon Public School
Curriculum**



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|---|-------------------|------------------|---------------------------------|
| Subject: Technology | Grade: 4th | Unit #: 2 | Pacing: 1 marking period |
| Unit Title: Computer Science – Part 2 (Data & Analysis and Algorithms & Programming) | | | |

OVERVIEW OF UNIT:

Computer Science outlines a comprehensive set of concepts and skills, such as data and analysis, algorithms and programming, and computing systems.

| Unit References | |
|---|--|
| Big Ideas | Essential Questions |
| <ul style="list-style-type: none"> ● Data can be organized, displayed, and presented to highlight relationships. ● The type of data being stored affects the storage requirements. ● Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data. ● Many factors influence the accuracy of inferences and predictions. ● Different algorithms can achieve the same result. ● Some algorithms are more appropriate for a specific use than others. ● Programming languages provide variables, which are used to store and modify data. ● A variety of control structures are used to change the flow of program execution (e.g., sequences, events, loops, conditionals). | <ul style="list-style-type: none"> ● How can data be used to highlight relationships? ● What affects storage requirements for data? ● Why is it important to be able to select, organize, and transform data in different visual representations? ● What factors influence the accuracy of inferences and predictions? ● How can you determine what algorithm is meant to be used? ● Where are you able to find variables? ● What is used to change the flow of program execution? ● What is an iterative process and how is it used when developing programs? |

- Programs can be broken down into smaller parts to facilitate their design, implementation, and review. Programs can also be created by incorporating smaller portions of programs that already exist.
- Individuals develop programs using an iterative process involving design, implementation, testing, and review.

Objectives

- Students will be able to demonstrate how data can be organized, displayed, and presented to highlight relationships.
- Students will be able to identify how the type of data being stored affects the storage requirements.
- Students will be able to explain how individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.
- Students will be able to compare the factors that influence the accuracy of inferences and predictions.
- Students will be able to determine which algorithms are appropriate for specific uses.
- Students will be able describe how programming languages provide variables, which are used to store and modify data.
- Students will be able to demonstrate how a variety of control structures are used to change the flow of program execution (e.g., sequences, events, loops, conditionals).
- Students will be able to summarize how individuals develop programs using an iterative process involving design, implementation, testing, and review.

Assessment

Formative Assessment:

- observation
- self-reflections
- teacher-student conferences

Summative Assessment:

- online quizzes & tests
- projects

Benchmark:

- Unit Pre-Test

Alternative:

- performance tasks
- projects

Key Vocabulary

- storage space
- data
- climate change
- algorithms
- variables
- sequences
- loops
- conditionals
- sub-problems
- modify, remix, incorporate
- iterative process
- implement

Resources & Materials

- SMARTBoard
- Teacher-made resources

Technology Infusion

Teacher Technology:

- Chromebook
- Google Classroom
- SmartBoard

Student Technology:

- Google Classroom
- Chromebooks
- Internet Sources

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| Activities: | |
| <ul style="list-style-type: none"> Students will use their Chromebooks to research climate change to find data to support a claim. They will then create a visual to display this data in a way that will support their claim. Finally, they will present their information and defend their claim. | |
| Standard | Standard Description |
| 8.1.5.DA.4 | Organize and present climate change data visually to highlight relationships or support a claim. |

| Interdisciplinary Integration | |
|--|--|
| Activities: | |
| <ul style="list-style-type: none"> Students will research climate change to find data to support a claim. They will then create a visual to display this data in a way that will support their claim. Finally, they will present their information and defend their claim. | |
| Resources: | |
| <ul style="list-style-type: none"> Teacher Vision Cross Curricular Theme Map - https://www.teachervision.com/teaching-methods/curriculum-planning/7167.html Engineering Go For It! - http://egfi-k12.org/ US Department of Education STEM - http://www.ed.gov/stem Intel STEM Resource - http://www.intel.com/content/www/us/en/education/k12/stem.html NASA STEM - http://www.nasa.gov/audience/foreducators/expeditions/stem/#.VYrO2flViko PBS STEM - http://www.pbs.org/teachers/stem/#content STEM Works - http://stem-works.com/activities What Every Education Should Know About Using Google by Shell Education Promoting Literacy in all Subjects by Glencoe - http://www.glencoe.com/sec/teachingtoday/subject/promoting_literacy.phtml International Literacy Association Read Write Think - http://www.readwritethink.org/ | |
| Standard | Standard Description |
| 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.W6 | Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others. |

| 21st Century Life Skills Standards | |
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| Activities: | |

| <ul style="list-style-type: none"> Students will research climate change to find data to support a claim. They will then create a visual to display this data in a way that will support their claim. Finally, they will present their information and defend their claim. | |
|---|--|
| Standard # | Student Learning Objectives |
| 9.4.5.IML.1 | Evaluate digital sources for accuracy, perspective, credibility and relevance. |

| Careers | |
|--|--|
| Activities: <ul style="list-style-type: none"> Students will research climate change to find data to support a claim. They will then create a visual to display this data in a way that will support their claim. Finally, they will present their information and defend their claim. | |
| CRP # | Practice |
| 4 | Communicate clearly and effectively and with reason. |

| Standards | |
|------------|---|
| Standard # | Standard Description |
| 8.1.5.DA.1 | Collect, organize, and display data in order to highlight relationships or support a claim. |
| 8.1.5.DA.2 | Compare the amount of storage space required for different types of data. |
| 8.1.5.DA.3 | Organize and present collected data visually to communicate insights gained from different views of the data. |
| 8.1.5.DA.4 | Organize and present climate change data visually to highlight relationships or support a claim. |
| 8.1.5.DA.5 | Propose cause and effect relationships, predict outcomes, or communicate ideas using data. |
| 8.1.5.AP.1 | Compare and refine multiple algorithms for the same task and determine which is the most appropriate. |
| 8.1.5.AP.2 | Create programs that use clearly named variables to store and modify data. |
| 8.1.5.AP.3 | Create programs that include sequences, events, loops, and conditionals. |
| 8.1.5.AP.4 | Break down problems into smaller, manageable sub-problems to facilitate program development. |
| 8.1.5.AP.5 | Modify, remix, or incorporate pieces of existing programs into one's own work to add additional features or create a new program. |
| 8.1.5.AP.6 | Develop programs using an iterative process, implement the program design, and test the program to ensure it works as intended. |

| Differentiation | | | |
|--|--|---|--|
| Special Education | English Language Learners (ELL) | Response to Intervention (RTI) | Enrichment |
| <ul style="list-style-type: none"> ● Provide modifications & accommodations as listed in the student's IEP ● Position student near helping peer or have quick access to teacher ● Modify or reduce assignments/tasks ● Reduce length of assignment for different mode of delivery ● Increase one-to-one time ● Prioritize tasks ● Use graphic organizers ● Use online resources for skill building ● Provide teacher notes ● Use collaborative grouping strategies such as small groups ● NJDOE resources - http://www.state.nj.us/education/specialed/ | <ul style="list-style-type: none"> ● Provide text-to-speech ● Use of translation dictionary or software ● Provide graphic organizers ● NJDOE resources - http://www.state.nj.us/education/aps/cccs/ELL.htm ● Adapt a Strategy – Adjusting strategies for ESL students - http://www.teachersfirst.com/content/esl/adaptstrat.cfm | <ul style="list-style-type: none"> ● Tiered interventions following RTI framework ● Effective RTI strategies for teachers - http://www.specialeducationguide.com/pre-k-12/response-to-intervention/effective-rti-strategies-for-teachers/ ● Interventional Central - http://www.interventioncentral.org/ | <ul style="list-style-type: none"> ● Process should be modified: higher order thinking skills, open-ended thinking, discovery ● Utilize project-based learning for greater depth of knowledge ● Utilize exploratory connections to higher grade concepts ● Contents should be modified: real world problems, audiences, deadlines, evaluations, transformations ● Learning environments should be modified: student-centered learning, independence, openness, complexity, groups varied ● NJDOE resources - http://www.state.nj.us/education/aps/cccs/g_and_t_req.htm |

**Califon Public School
Curriculum**



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|--|-------------------|------------------|---------------------------------|
| Subject: Technology | Grade: 4th | Unit #: 3 | Pacing: 1 marking period |
| Unit Title: Design Thinking (Engineering Design & Nature of Technology) | | | |

OVERVIEW OF UNIT:

Design thinking outlines the technological design concepts and skills essential for technological and engineering literacy.

Unit References

| Big Ideas | Essential Questions |
|--|--|
| <ul style="list-style-type: none"> ● Engineering design is a systematic and creative process of communicating and collaborating to meet a design challenge. ● Engineering design requirements include desired features and limitations that need to be considered. ● Engineers create and modify technologies to meet people’s needs and wants; scientists ask questions about the natural world. | <ul style="list-style-type: none"> ● What is engineering design? ● What requirements need to be involved with engineering design? ● What factors have influenced technology innovation and improvement? |

Objectives

- Students will be able to describe the process of engineering design.
- Students will be able to identify the requirements needed when following the engineering design process.
- Students will be able to summarize how technology innovation and improvement has been influenced by different factors.

Assessment

Formative Assessment:

- observation
- self-reflections
- teacher-student conferences

Benchmark:

- Unit Pre-Test

Summative Assessment:

- online quizzes & tests
- projects

Alternative:

- performance tasks
- projects

Key Vocabulary

- function
- system
- subsystem
- assemble
- product
- development
- engineering design process
- alternative solutions
- constraints
- tradeoffs
- troubleshoot
- demands
- values
- interests

Resources & Materials

- SMARTBoard
- Teacher-made resources

Technology Infusion**Teacher Technology:**

- Chromebook
- Google Classroom
- SmartBoard

Student Technology:

- Google Classroom
- Chromebooks
- Internet Sources

Activities:

- Students will choose a product and research its current use. They will then work in a collaborative group to redesign the product for a different purpose.

| Standard | Standard Description |
|------------|---|
| 8.2.5.NT.3 | Redesign an existing product for a different purpose in a collaborative team. |

Interdisciplinary Integration**Activities:**

Students will choose a product and research its current use. They will then work in a collaborative group to redesign the product for a different purpose.

Resources:

- Teacher Vision Cross Curricular Theme Map - <https://www.teachervision.com/teaching-methods/curriculum-planning/7167.html>
- Engineering Go For It! - <http://egfi-k12.org/>
- US Department of Education STEM - <http://www.ed.gov/stem>
- Intel STEM Resource - <http://www.intel.com/content/www/us/en/education/k12/stem.html>
- NASA STEM - <http://www.nasa.gov/audience/foreducators/expeditions/stem/#.VYrO2flViko>
- PBS STEM - <http://www.pbs.org/teachers/stem/#content>
- STEM Works - <http://stem-works.com/activities>
- [What Every Education Should Know About Using Google](#) by Shell Education
- Promoting Literacy in all Subjects by Glencoe - http://www.glencoe.com/sec/teachingtoday/subject/promoting_literacy.phtml
- International Literacy Association Read Write Think - <http://www.readwritethink.org/>

| Standard | Standard Description |
|----------|----------------------|
|----------|----------------------|

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

21st Century Life Skills Standards

Activities:

- Students will choose a product and research its current use. They will then work in a collaborative group to redesign the product for a different purpose.

| Standard # | Student Learning Objectives |
|-------------|--|
| 9.4.5.IML.1 | Evaluate digital sources for accuracy, perspective, credibility and relevance. |

Careers

Activities:

- Students will choose a product and research its current use. They will then work in a collaborative group to redesign the product for a different purpose.

| CRP # | Practice |
|-------|--|
| 4 | Communicate clearly and effectively and with reason. |

Standards

| Standard # | Standard Description |
|------------|---|
| 8.2.5.ED.1 | Explain the functions of a system and its subsystems. |
| 8.2.5.ED.2 | Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models. |
| 8.2.5.ED.3 | Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task. |
| 8.2.5.ED.4 | Explain factors that influence the development and function of products and systems (e.g., resources, criteria, desired features, constraints). |
| 8.2.5.ED.5 | Describe how specifications and limitations impact the engineering design process. |
| 8.2.5.ED.6 | Evaluate and test alternative solutions to a problem using the constraints and tradeoffs identified in the design process. |
| 8.2.5.NT.1 | Troubleshoot a product that has stopped working and brainstorm ideas to correct the problem. |

| | |
|------------|--|
| 8.2.5.NT.2 | Identify new technologies resulting from the demands, values, and interests of individuals, businesses, industries, and societies. |
| 8.2.5.NT.3 | Redesign an existing product for a different purpose in a collaborative team. |
| 8.2.5.NT.4 | Identify how improvement in the understanding of materials science impacts technologies. |

| Differentiation | | | |
|--|--|---|--|
| Special Education | English Language Learners (ELL) | Response to Intervention (RTI) | Enrichment |
| <ul style="list-style-type: none"> ● Provide modifications & accommodations as listed in the student's IEP ● Position student near helping peer or have quick access to teacher ● Modify or reduce assignments/tasks ● Reduce length of assignment for different mode of delivery ● Increase one-to-one time ● Prioritize tasks ● Use graphic organizers ● Use online resources for skill building ● Provide teacher notes ● Use collaborative grouping strategies such as small groups ● NJDOE resources - http://www.state.nj.us/education/specialed/ | <ul style="list-style-type: none"> ● Provide text-to-speech ● Use of translation dictionary or software ● Provide graphic organizers ● NJDOE resources - http://www.state.nj.us/education/aps/cccs/ELL.htm ● Adapt a Strategy – Adjusting strategies for ESL students - http://www.teachersfirst.com/content/esl/adaptstrat.cfm | <ul style="list-style-type: none"> ● Tiered interventions following RTI framework ● Effective RTI strategies for teachers - http://www.specialeducationguide.com/pre-k-12/response-to-intervention/effective-rti-strategies-for-teachers/ ● Interventional Central - http://www.interventioncentral.org/ | <ul style="list-style-type: none"> ● Process should be modified: higher order thinking skills, open-ended thinking, discovery ● Utilize project-based learning for greater depth of knowledge ● Utilize exploratory connections to higher grade concepts ● Contents should be modified: real world problems, audiences, deadlines, evaluations, transformations ● Learning environments should be modified: student-centered learning, independence, openness, complexity, groups varied ● NJDOE resources - http://www.state.nj.us/education/aps/cccs/g_and_t_req.htm |

**Califon Public School
Curriculum**



| | | | |
|---|-------------------|------------------|---------------------------------|
| Subject: Technology | Grade: 4th | Unit #: 4 | Pacing: 1 marking period |
| Unit Title: Design Thinking (Interaction of Technology & Humans, Effects of Technology on the Natural World, Ethics & Culture) | | | |

OVERVIEW OF UNIT:

Design thinking outlines the technological design concepts and skills essential for technological and engineering literacy.

| Unit References | |
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| Big Ideas | Essential Questions |
| <ul style="list-style-type: none"> ● Societal needs and wants determine which new tools are developed to address real-world problems. ● A new tool may have favorable or unfavorable results as well as both positive and negative effects on society. ● Technology spurs new businesses and careers. ● The technology developed for the human designed world can have unintended consequences for the environment. | <ul style="list-style-type: none"> ● Why are new tools developed to address real-world problems? ● What effects may new tools have on society? ● What businesses and careers have been developed due to new technology? ● How does new technology have an impact on the environment? |

| Objectives |
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| <ul style="list-style-type: none"> ● Students will be able to determine what leads to new tools being developed to address real-world problems. ● Students will be able to compare and contrast the effects new tools have on society. ● Students will be able to research how technology has influenced the development of new businesses and careers. ● Students will be able to justify how new technology impacts the environment in positive and negative ways. |

| Assessment |
|-------------------|
| |

Formative Assessment:

- observation
- self-reflections
- teacher-student conferences

Summative Assessment:

- online quizzes & tests
- projects

Benchmark:

- Unit Pre-Test

Alternative:

- performance tasks
- projects

Key Vocabulary

- societal needs & wants
- function
- shortcomings
- product
- system
- consequences
- resources
- human-designed systems
- impact
- climate change
- inequities

Resources & Materials

- SMARTBoard
- Teacher-made resources

Technology Infusion**Teacher Technology:**

- Chromebook
- Google Classroom
- SmartBoard

Student Technology:

- Google Classroom
- Chromebooks
- Internet Sources

Activities:

- Students will use internet sources to research a specific product and explain how societal needs and wants influence its development and function.

| Standard | Standard Description |
|-------------|--|
| 8.2.5.ITH.1 | Explain how societal needs and wants influence the development and function of a product and a system. |

Interdisciplinary Integration**Activities:**

- Students will research a specific product and explain how societal needs and wants influence its development and function.

Resources:

- Teacher Vision Cross Curricular Theme Map - <https://www.teachervision.com/teaching-methods/curriculum-planning/7167.html>
- Engineering Go For It! - <http://egfi-k12.org/>
- US Department of Education STEM - <http://www.ed.gov/stem>
- Intel STEM Resource - <http://www.intel.com/content/www/us/en/education/k12/stem.html>
- NASA STEM - <http://www.nasa.gov/audience/foreducators/expeditions/stem/#.VYrO2flViko>
- PBS STEM - <http://www.pbs.org/teachers/stem/#content>
- STEM Works - <http://stem-works.com/activities>
- [What Every Education Should Know About Using Google](#) by Shell Education
- Promoting Literacy in all Subjects by Glencoe - http://www.glencoe.com/sec/teachingtoday/subject/promoting_literacy.phtml
- International Literacy Association Read Write Think - <http://www.readwritethink.org/>

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

21st Century Life Skills Standards

Activities:

- Students will research a specific product and explain how societal needs and wants influence its development and function.

| Standard # | Student Learning Objectives |
|-------------|--|
| 9.4.5.IML.1 | Evaluate digital sources for accuracy, perspective, credibility and relevance. |

Careers

Activities:

- Students will research a specific product and explain how societal needs and wants influence its development and function.

| CRP # | Practice |
|-------|--|
| 4 | Communicate clearly and effectively and with reason. |

Standards

| Standard # | Standard Description |
|-------------|---|
| 8.2.5.ITH.1 | Explain how societal needs and wants influence the development and function of a product and a system. |
| 8.2.5.ITH.2 | Evaluate how well a new tool has met its intended purpose and identify any shortcomings it might have. |
| 8.2.5.ITH.3 | Analyze the effectiveness of a new product or system and identify the positive and/or negative consequences resulting from its use. |
| 8.2.5.ITH.4 | Describe a technology/tool that has made the way people live easier or has led to a new business or career. |
| 8.2.5.ETW.1 | Describe how resources such as material, energy, information, time, tools, people, and capital are used in products or systems. |
| 8.2.5.ETW.2 | Describe ways that various technologies are used to reduce improper use of resources. |
| 8.2.5.ETW.3 | Explain why human-designed systems, products, and environments need to be constantly monitored, maintained, and improved. |
| 8.2.5.ETW.4 | Explain the impact that resources, such as energy and materials used to develop technology, have on the environment. |
| 8.2.5.ETW.5 | Identify the impact of a specific technology on the environment and determine what can be done to increase positive effects and to reduce any negative effects, such as climate change. |
| 8.2.5.EC.1 | Analyze how technology has contributed to or reduced inequities in local and global communities and determine its short- and long-term effects. |

| Differentiation | | | |
|--|--|---|--|
| Special Education | English Language Learners (ELL) | Response to Intervention (RTI) | Enrichment |
| <ul style="list-style-type: none"> ● Provide modifications & accommodations as listed in the student's IEP ● Position student near helping peer or have quick access to teacher ● Modify or reduce assignments/tasks ● Reduce length of assignment for different mode of delivery ● Increase one-to-one time ● Prioritize tasks ● Use graphic organizers ● Use online resources for skill building ● Provide teacher notes ● Use collaborative grouping strategies such as small groups ● NJDOE resources - http://www.state.nj.us/education/specialed/ | <ul style="list-style-type: none"> ● Provide text-to-speech ● Use of translation dictionary or software ● Provide graphic organizers ● NJDOE resources - http://www.state.nj.us/education/aps/cccs/ELL.htm ● Adapt a Strategy – Adjusting strategies for ESL students - http://www.teachersfirst.com/content/esl/adaptstrat.cfm | <ul style="list-style-type: none"> ● Tiered interventions following RTI framework ● Effective RTI strategies for teachers - http://www.specialeducationguide.com/pre-k-12/response-to-intervention/effective-rti-strategies-for-teachers/ ● Interventional Central - http://www.interventioncentral.org/ | <ul style="list-style-type: none"> ● Process should be modified: higher order thinking skills, open-ended thinking, discovery ● Utilize project-based learning for greater depth of knowledge ● Utilize exploratory connections to higher grade concepts ● Contents should be modified: real world problems, audiences, deadlines, evaluations, transformations ● Learning environments should be modified: student-centered learning, independence, openness, complexity, groups varied ● NJDOE resources - http://www.state.nj.us/education/aps/cccs/g_and_t_req.htm |