S.T.E.A.M. (Enrichment)

Unit Title: Crime Scene Investigation

Stage 1: Desired Results

Standards & Indicators: **2020 NJSLS – Computer Science and Design Thinking**

8.2.8.ED.2: Identify the steps in the design process that could be used to solve a problem.
8.2.8.ED.3: Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch).
8.2.8.ED.7: Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries	Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.
9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.	There is a need to produce and publish media that has information supported with quality evidence and is intended for authentic audiences.

Central Idea/Enduring Understanding:

Students should be able to create various products to complete the following “real-world” scenario: “The district attorney's office and regional law enforcement are teaming up to create a crime scene investigation unit. The purpose of this new unit will be to gather evidence in a more scientific manner, and to provide more valuable evidence to the district attorney's office in order to help them convict criminals. For this unit to be successful, the investigators will need to understand the scientific background of evidence-gathering, as well as the appropriate tools to help them gather the evidence. Additionally, they will need to understand how the evidence gathered is typically used in a criminal trial.” Students will also learn how to complete various tasks usually completed by a crime scene investigation unit.”

Essential/Guiding Question:

- How are math and science related to police work?
- What do crime scene investigators do at a scene?

S.T.E.A.M. (Enrichment)

Content:	**Skills(Objectives):**
Lesson 1- Engage/Hook & Introduction Lesson 2 - Explore Task Themes & Provide Context Lesson 3 - Review Products & Develop/Refine Research Questions Lesson 4 - Conduct Research Lesson 5 - Produce the Products Lesson 6 - Feedback Lesson 7 - Revise Product Lesson 8 - Fingerprint Lesson Lesson 9 - Impression Evidence Lesson 10 - DNA as Evidence Lesson 11 - Calculating Time of Death Lesson 12 - Evidence Puzzler Lesson 13 - Murder Mystery	• Communicate and collaborate with classmates in order to solve a problem • Identify different strategies used to solve a problem • Research answers to questions using the "Research Resources" section of the task, class materials, books, the internet or expert consults • Develop a list of essential equipment with an explanation of why each item is important. • Create a multimedia presentation that includes a step-by-step tutorial on how the process is carried out and should contain written descriptions to assist the viewer • Set up a fake crime scene within the classroom and then to create a scale drawing to match it and calculate an appropriate scale factor • Write an editorial in favor of more funding for a police crime scene unit • Identify different types of fingerprints to aid in analysis to find matching prints • Review information about DNA and how it can be used in a crime scene investigation as evidence • Understand and use the formula needed to calculate the time of death of a body • Understand how impression evidence is collected, analyzed, and used in a crime scene investigation

Interdisciplinary Connections:

Science:

- MS-LS1-3. Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
- MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

Language Arts:

- RI.8.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
- W.8.2.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).
- W.8.2.B. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
- W.8.4. Produce clear and coherent writing in which the development, organization, voice and style are appropriate to task, purpose, and audience.
- W.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.

S.T.E.A.M. (Enrichment)

- L.8.6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.
- SL.8.5. Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

Stage 2: Assessment Evidence

Performance Task(s):

- Students have a choice of two:
  - Multimedia Presentation
  - Materials and Equipment List
  - Editorial
  - Model and Re-creation
- Murder Mystery
  - Example

Other Evidence:

- Online assignments
- Exit Tickets
- Worksheets
- Do Nows

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Lesson 1- Engage/Hook & Introduction: Hook students and introduce topic
Lesson 2 - Explore Task Themes & Provide Context: Provide background information
Lesson 3 - Review Products & Develop/Refine Research Questions: Review possible products (performance tasks) and develop research questions
Lesson 4 - Conduct Research: Complete research to answer questions
Lesson 5 - Produce the Products: Choose two products and complete
Lesson 6 - Feedback: Receive and process given feedback
Lesson 7 - Revise Product: Revise products based on feedback
Lesson 8 - Fingerprint Lesson: Identify, classify and match fingerprints
Lesson 9 - Impression Evidence: Learn how evidence is cataloged and how to match it to a sample
Lesson 10 - DNA as Evidence: Review information about DNA and how it can be used in a crime scene investigation as evidence
Lesson 11 - Calculating Time of Death: Understand and use the formula needed to calculate the time of death of a body
Lesson 12 - Evidence Puzzler: Use skills learned in previous lessons to match evidence to samples
Lesson 13 - Murder Mystery: Use content knowledge to solve a murder mystery case

Resources:

- Lesson Presentations
- Google Docs
- Google Forms
- Google Classroom
- Definedlearning.com

LGBT and Disabilities Law Resources:

- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities

DEI Resources:

- Learning for Justice
- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities
- NJDOE Diversity, Equity & Inclusion Educational Resources
- Diversity Calendar

S.T.E.A.M. (Enrichment)

Differentiation
*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Higher order thinking questions Differentiation of pacing and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension	Differentiation of learning strategies: visual, auditory, kinetic and cooperative Differentiating the lesson activities Lesson tutorials	Provide a highly structured, predictable learning environment Provide organizers Lessons designed to the style of learning that matches the student Cooperative Learning Positive reinforcement Lessons presentation available on google classroom Frequent check for understanding Break down task into manageable units One-on-one instruction Pair student with a high achieving student	Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries

Unit Title: Artificial Island Real Estate Agent

Stage 1: Desired Results

Standards & Indicators: **2020 NJSLS – Computer Science and Design Thinking**

8.2.8.ED.2: Identify the steps in the design process that could be used to solve a problem.
8.2.8.ED.3: Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch).
8.2.8.ED.7: Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries	Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.

S.T.E.A.M. (Enrichment)

9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.	There is a need to produce and publish media that has information supported with quality evidence and is intended for authentic audiences.

Central Idea/Enduring Understanding: Students should be able to create various products to complete the following "real-world" scenario: "A middle eastern country is very interested in creating its own artificial palm island to increase real estate near the water and to enhance its tourism industry."	**Essential/Guiding Question:** ● How did the creation of the Palm Islands provide an economic solution for Dubai? ● Why did they choose a palm for the shape of the islands? ● What were some of the engineering/construction techniques used to create the Palm Islands in the middle of the Arabian Sea?
Content: Lesson 1- Engage/Hook & Introduction Lesson 2 - Explore Task Themes & Provide Context Lesson 3 - Review Products & Develop/Refine Research Questions Lesson 4 - Conduct Research Lesson 5 - Produce the Products Lesson 6 - Feedback Lesson 7 - Revise Product Lesson 8 - Present Product	**Skills(Objectives):** ● Communicate and collaborate with classmates in order to solve a problem ● Identify different strategies used to solve a problem ● Research answers to questions using the "Research Resources" section of the task, class materials, books, the internet or expert consults ● Determine the shape and size of the island you plan to create, then you must use mathematics to figure out the volume of sand and rock that will be needed to create an island of that size (in meters cubed) ● Advertise the plots of land that your company plans to sell, show the prospective buyer the different sized lots available, include the unit price per square meter and show an algebraic equation that prospective buyers can use to determine the cost of plots they are interested in ● Research and write a paper about the potential environmental impact that the changes to the physical environment may have on fish and animal populations living in the Persian Gulf near the islands ● Create a presentation that uses images from the construction and development of the Palm Islands in Dubai. ● Create an oral presentation that explains why the shape of a palm tree was used to create the Palm Islands and explain both the cultural and mathematical reasons for the shape you chose to create your island ● Create a programming flow chart that is a diagram that will be sent to a software engineer who will be developing virtual tour of land for the agency's website

S.T.E.A.M. (Enrichment)

Interdisciplinary Connections:

Science:

- ESS3.C:1. Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things.
- MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
- ESS3.C:1. Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things.
- ETS1.B:2. There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.
- ETS1.A:1. The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.
- ETS1.B:4. Models of all kinds are important for testing solutions.
- MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
- MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- (MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
- MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Stage 2: Assessment Evidence

Performance Task(s):

- Students have a choice of three:
  - Drawing
  - Advertisement
  - Environmental Impact Study
  - Multimedia Presentation
  - Oral Presentation
  - Programming Flowchart

Other Evidence:

- Online assignments
- Exit Tickets
- Worksheets
- Do Nows

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Lesson 1- Engage/Hook & Introduction: Hook students and introduce topic
Lesson 2 - Explore Task Themes & Provide Context: Provide background information
Lesson 3 - Review Products & Develop/Refine Research Questions: Review possible products (performance tasks) and develop research questions
Lesson 4 - Conduct Research: Complete research to answer questions

Resources:

- Lesson Presentations
- Google Docs
- Google Forms
- Google Classroom
- definedlearning.com

LGBT and Disabilities Law Resources:

- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List

S.T.E.A.M. (Enrichment)

Lesson 5 - Produce the Products: Choose two products and complete **Lesson 6 - Feedback:** Receive and process given feedback **Lesson 7 - Revise Product:** Revise products based on feedback **Lesson 8 - Present Product:** Present product to peers	• Respect Ability: Fighting Stigmas, Advancing Opportunities DEI Resources: • Learning for Justice • GLSEN Educator Resources • Supporting LGBTQIA Youth Resource List • Respect Ability: Fighting Stigmas, Advancing Opportunities • NJDOE Diversity, Equity & Inclusion Educational Resources • Diversity Calendar

Differentiation

*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Higher order thinking questions Differentiation of pacing and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension	Differentiation of learning strategies: visual, auditory, kinetic and cooperative Differentiating the lesson activities Lesson tutorials	Provide a highly structured, predictable learning environment Provide organizers Lessons designed to the style of learning that matches the student Cooperative Learning Positive reinforcement Lessons presentation available on google classroom Frequent check for understanding Break down task into manageable units One-on-one instruction Pair student with a high achieving student	Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries

S.T.E.A.M. (Enrichment)

Unit Title: Coast-To-Coast Trip: Travel Agent

Stage 1: Desired Results

Standards & Indicators: **2020 NJSLS – Computer Science and Design Thinking**

8.2.8.ED.2: Identify the steps in the design process that could be used to solve a problem.
8.2.8.ED.3: Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch).
8.2.8.ED.7: Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries	Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.
9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.	There is a need to produce and publish media that has information supported with quality evidence and is intended for authentic audiences.

Central Idea/Enduring Understanding:

Students should be able to create various products to complete the following "real-world" scenario: "You are a travel agent specializing in trips to historic sites. You have been contacted by a family of four who needs your help. They are thinking about a coast-to-coast vacation from Baltimore, MD to Los Angeles, CA. They want to travel by train and would like to visit at least four National Historic Landmarks between these two locations during their trip. They are willing to stop along the way and rent a car to get to these landmarks. Depending on the distance from the train stations, the family may need to stay in a hotel. To assist in planning the lengthy trip, you are to design a scale map of their travels, plan a calendar for the trip, suggest the sites to visit, figure the amount of gas necessary for the trip by automobile, and calculate the cost for the trip by locomotive."

Essential/Guiding Question:

- What buildings served as inspiration for the design of the Virginia State Capitol building?
- Why was the design of the Virginia State Capitol building so significant? Consider both architectural and political impacts.

Content:

Lesson 1- Engage/Hook & Introduction
Lesson 2 - Explore Task Themes & Provide Context

Skills(Objectives):

- Communicate and collaborate with classmates in order to solve a problem
- Identify different strategies used to solve a problem

S.T.E.A.M. (Enrichment)

Lesson 3 - Review Products & Develop/Refine Research Questions Lesson 4 - Conduct Research Lesson 5 - Produce the Products Lesson 6 - Feedback Lesson 7 - Revise Product Lesson 8 - Present Product	● Research answers to questions using the "Research Resources" section of the task, class materials, books, the internet or expert consults ● Construct a narrative for each of the National Landmarks picked and share information related to what a visitor to the landmark would observe ● Research different National Historic Landmarks that would be generally along the route from Baltimore to Los Angeles that the family can visit. ● Create a multimedia presentation highlighting the importance of a selection of landmarks, include the historical significance of the landmarks, and provide connections to the geographical locations and significance of each. ● Create a map of the course that the family will take on their trip. Include the National Historic Landmarks they will visit as well as the hotels they will stop in along the way. ● Construct a digital trip itinerary, including landmark summaries, train route, expenses and calendar. ● Create an expected expense table for the family.

Interdisciplinary Connections:

Language Arts:

- W.8.1.A. Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
- W.8.2.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).
- W.8.2.B. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
- W.8.2.F. Provide a concluding statement or section that follows from and supports the information or explanation presented.
- W.8.3.B. Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.
- W.8.4. Produce clear and coherent writing in which the development, organization, voice and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
- W.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.
- W.8.6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.
- W.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.
- W.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.
- W.8.10. Write routinely over extended time frames (time for research, reflection, metacognition/self correction, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

S.T.E.A.M. (Enrichment)

- SL.8.2. Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.
- SL.8.4. Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
- SL.8.5. Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

Mathematics:

- 8.F.B.5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
- 8.F.A.1. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
- 8.F.A.2. Compare properties (e.g. rate of change, intercepts, domain and range) of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.

Stage 2: Assessment Evidence

Performance Task(s):

- Students have a choice of three:
  - Journal
  - National Historic Landmarks Presentation
  - Map
  - Trip Itinerary
  - Data Table

Other Evidence:

- Online assignments
- Exit Tickets
- Worksheets
- Do Nows

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Lesson 1- Engage/Hook & Introduction: Hook students and introduce topic
Lesson 2 - Explore Task Themes & Provide Context: Provide background information
Lesson 3 - Review Products & Develop/Refine Research Questions: Review possible products (performance tasks) and develop research questions
Lesson 4 - Conduct Research: Complete research to answer questions
Lesson 5 - Produce the Products: Choose two products and complete
Lesson 6 - Feedback: Receive and process given feedback
Lesson 7 - Revise Product: Revise products based on feedback
Lesson 8 - Present Product: Present product to peers

Resources:

- Lesson Presentations
- Google Docs
- Google Forms
- Google Classroom
- definedlearning.com

LGBT and Disabilities Law Resources:

- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities

DEI Resources:

- Learning for Justice
- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities

S.T.E.A.M. (Enrichment)

	• NJDOE Diversity, Equity & Inclusion Educational Resources • Diversity Calendar

Differentiation
*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Higher order thinking questions Differentiation of pacing and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension	Differentiation of learning strategies: visual, auditory, kinetic and cooperative Differentiating the lesson activities Lesson tutorials	Provide a highly structured, predictable learning environment Provide organizers Lessons designed to the style of learning that matches the student Cooperative Learning Positive reinforcement Lessons presentation available on google classroom Frequent check for understanding Break down task into manageable units One-on-one instruction Pair student with a high achieving student	Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries

Unit Title: Food Truck Entrepreneur

Stage 1: Desired Results

Standards & Indicators: **2020 NJSLS – Computer Science and Design Thinking**

8.2.8.ED.2: Identify the steps in the design process that could be used to solve a problem.
8.2.8.ED.3: Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch).
8.2.8.ED.7: Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries	Gathering and evaluating knowledge and information from a variety of

S.T.E.A.M. (Enrichment)

		sources, including global perspectives, fosters creativity and innovative thinking.
9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.	There is a need to produce and publish media that has information supported with quality evidence and is intended for authentic audiences.

Central Idea/Enduring Understanding: Students should be able to create various products to complete the following "real-world" scenario: "A food truck is a large vehicle equipped to cook and sell food. Some sell frozen or prepackaged food while others have on-board kitchens and prepare food from scratch. Sandwiches, hamburgers, french fries, and other regional fast food fare is common. In recent years, food trucks offering gourmet cuisine and a variety of specialties and ethnic menus, have become particularly popular. These trucks can be found in any area with people looking to eat. Many of these trucks specialize in a certain type of food. You will be creating your own food truck and you will need to make many decisions related to the food you will be serving, the truck, and your business strategies."	**Essential/Guiding Question:** ● How does someone develop a business model? ● What is an entrepreneur? ● What skills are needed to make ideas happen?
Content: Lesson 1- Engage/Hook & Introduction Lesson 2 - Explore Task Themes & Provide Context Lesson 3 - Review Products & Develop/Refine Research Questions Lesson 4 - Conduct Research Lesson 5 - Produce the Products Lesson 6 - Feedback Lesson 7 - Revise Product Lesson 8 - Present Product	**Skills(Objectives):** ● Communicate and collaborate with classmates in order to solve a problem ● Identify different strategies used to solve a problem ● Research answers to questions using the "Research Resources" section of the task, class materials, books, the internet or expert consults ● Research state to choose a farm area for the home of your food truck and business and events happening in the area ● Create a fuel expense chart to help develop an algebraic equation to help determine fuel expenses. ● Construct an expected budget for the food truck based on given criteria and constraints ● Conduct research to determine the type of food that will be sold and the environmental factors that are needed to grow them sustainably ● Develop a name, logo and design for the food truck

S.T.E.A.M. (Enrichment)

Interdisciplinary Connections:

Science:

- MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
- MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

Stage 2: Assessment Evidence

Performance Task(s):

- Students have a choice of three:
  - Map
  - Fuel Expense Chart
  - Monthly Budget
  - Research Proposal
  - Food Truck Design

Other Evidence:

- Online assignments
- Exit Tickets
- Worksheets
- Do Nows

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Lesson 1- Engage/Hook & Introduction: Hook students and introduce topic
Lesson 2 - Explore Task Themes & Provide Context: Provide background information
Lesson 3 - Review Products & Develop/Refine Research Questions: Review possible products (performance tasks) and develop research questions
Lesson 4 - Conduct Research: Complete research to answer questions
Lesson 5 - Produce the Products: Choose two products and complete
Lesson 6 - Feedback: Receive and process given feedback
Lesson 7 - Revise Product: Revise products based on feedback
Lesson 8 - Present Product: Present product to peers

Resources:

- Lesson Presentations
- Google Docs
- Google Forms
- Google Classroom
- definedlearning.com

LGBT and Disabilities Law Resources:

- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities

DEI Resources:

- Learning for Justice
- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities
- NJDOE Diversity, Equity & Inclusion Educational Resources
- Diversity Calendar

Differentiation

*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

S.T.E.A.M. (Enrichment)

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Higher order thinking questions Differentiation of pacing and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension	Differentiation of learning strategies: visual, auditory, kinetic and cooperative Differentiating the lesson activities Lesson tutorials	Provide a highly structured, predictable learning environment Provide organizers Lessons designed to the style of learning that matches the student Cooperative Learning Positive reinforcement Lessons presentation available on google classroom Frequent check for understanding Break down task into manageable units One-on-one instruction Pair student with a high achieving student	Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries

Unit Title: Mars Transportation Consultant: Creating a Spaceport

Stage 1: Desired Results

Standards & Indicators: **2020 NJSLS – Computer Science and Design Thinking**

8.2.8.ED.2: Identify the steps in the design process that could be used to solve a problem.
8.2.8.ED.3: Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch).
8.2.8.ED.7: Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs
8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.
8.1.8.DA.3: Identify the appropriate tool to access data based on its file format.

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries	Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.
9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.	There is a need to produce and publish media that has information supported with quality evidence and is intended for authentic audiences.

S.T.E.A.M. (Enrichment)

<table>
<tr>
<td><u>Central Idea/Enduring Understanding</u>:

Students should be able to create various products to complete the following “real-world” scenario: “As the United States considers returning to the Moon and eventually to Mars, NASA and many private industries are building vehicles to send into space and to move around the surface of the Moon and Mars. The FAA has already approved spaceports around the United States. As space travel progresses, spaceports will become necessary on the Moon and on Mars.
Many years of planning and preparation must begin now for these future hubs of transportation. As a transportation consultant, you will be submitting a proposal to design the first Martian spaceport. To accomplish this task, you will need to research many of the vehicles that are currently in design and construction to help people get to these far-away destinations. You will also want to research the vehicles that will be used to move around these places. Please use the internet to discover some of these public and private projects. This project takes innovation and creativity on your part, as you must think futuristically.”</td>
<td><u>Essential/Guiding Question</u>:

● What is a spaceport and why is it important?
● Why can a spaceport be an entrepreneurial solution?
● Why are private companies looking to build spaceports?
● What are potential careers that are associated with the creation of spaceports?</td>
</tr>
<tr>
<td><u>Content</u>:

Lesson 1- Engage/Hook & Introduction
Lesson 2 - Explore Task Themes & Provide Context
Lesson 3 - Review Products & Develop/Refine Research Questions
Lesson 4 - Conduct Research
Lesson 5 - Produce the Products
Lesson 6 - Feedback
Lesson 7 - Revise Product
Lesson 8 - Present Product</td>
<td><u>Skills(Objectives)</u>:

● Communicate and collaborate with classmates in order to solve a problem
● Identify different strategies used to solve a problem
● Research answers to questions using the “Research Resources” section of the task, class materials, books, the internet or expert consults
● Create an audio or video advertisement encouraging people to visit Mars and use the Martian Spaceport describing the facility in detail and explain how visiting it can make their trip easier.
● Create two views of the Martian Spaceport showcasing the vehicle storage and the interior meant for people
● Construct a drawing or a model of a vehicle meant to travel to and from Mars or around Mars
● Create a narrated multimedia presentation that depicts the history of vehicles used to transport people beyond Earth’s atmosphere and into space
● Develop a research proposal to aide in the explanations of designs used in the artist rendering</td>
</tr>
<tr>
<td colspan="2"><u>Interdisciplinary Connections:</u>
Science:
● MS-ETS1-1.) Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.</td>
</tr>
</table>

S.T.E.A.M. (Enrichment)

- MS-ETS1-2.) Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- (MS-ETS1-4.) Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Stage 2: Assessment Evidence

Performance Task(s):

- Students have a choice of three:
  - Commercial
  - Artist Rendering
  - Drawing or Model
  - Photostory
  - Research Proposal

Other Evidence:

- Online assignments
- Exit Tickets
- Worksheets
- Do Nows

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Lesson 1- Engage/Hook & Introduction: Hook students and introduce topic
Lesson 2 - Explore Task Themes & Provide Context: Provide background information
Lesson 3 - Review Products & Develop/Refine Research Questions: Review possible products (performance tasks) and develop research questions
Lesson 4 - Conduct Research: Complete research to answer questions
Lesson 5 - Produce the Products: Choose two products and complete
Lesson 6 - Feedback: Receive and process given feedback
Lesson 7 - Revise Product: Revise products based on feedback
Lesson 8 - Present Product: Present product to peers

Resources:

- Lesson Presentations
- Google Docs
- Google Forms
- Google Classroom
- definedlearning.com

LGBT and Disabilities Law Resources:

- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities

DEI Resources:

- Learning for Justice
- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities
- NJDOE Diversity, Equity & Inclusion Educational Resources
- Diversity Calendar

Differentiation

*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Higher order thinking questions Differentiation of pacing and activities Differentiation of learning strategies: visual,	Differentiation of learning strategies: visual, auditory, kinetic and cooperative Differentiating the	Provide a highly structured, predictable learning environment Provide organizers Lessons designed to the style of learning	Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller

auditory, kinetic and cooperative Enrichment and extension	lesson activities Lesson tutorials	that matches the student Cooperative Learning Positive reinforcement Lessons presentation available on google classroom Frequent check for understanding Break down task into manageable units One-on-one instruction Pair student with a high achieving student	tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries

Unit Title: Historian: Shipwreck

Stage 1: Desired Results

Standards & Indicators: **2020 NJSLS – Computer Science and Design Thinking**

8.2.8.ED.2: Identify the steps in the design process that could be used to solve a problem.
8.2.8.ED.3: Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch).
8.2.8.ED.7: Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries	Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.
9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.	There is a need to produce and publish media that has information supported with quality evidence and is intended for authentic audiences.

Central Idea/Enduring Understanding:	Essential/Guiding Question:
Students should be able to create various products to complete the following “real-world” scenario: “A team of treasure hunters has just discovered a shipwreck. An initial dive yielded a number of coins. These coins need to be analyzed to determine their origin and the potential purpose they served aboard the ship. Based upon your	● What do Numismatists do and how does their work tell us about the past? ● What skills are needed to be successful in this career?

S.T.E.A.M. (Enrichment)

<table>
<tr><td>findings, the team will need to decide whether further investigation is warranted. The investors need to decide whether the shipwreck has value and is worth funding. Your research and decisions are of critical importance to all concerned.”</td><td></td></tr>
<tr><td>Content:

Lesson 1- Engage/Hook & Introduction
Lesson 2 - Explore Task Themes & Provide Context
Lesson 3 - Review Products & Develop/Refine Research Questions
Lesson 4 - Conduct Research
Lesson 5 - Produce the Products
Lesson 6 - Feedback
Lesson 7 - Revise Product
Lesson 8 - Present Product</td><td>Skills(Objectives):

• Communicate and collaborate with classmates in order to solve a problem
• Identify different strategies used to solve a problem
• Research answers to questions using the “Research Resources” section of the task, class materials, books, the internet or expert consults
• Analyze a coin to provide the significance or meaning of the various symbols used and the meaning to the people who use them
• Create a short podcast that teaches investors about the value of coins, how the coins were found, and convince an investor to purchase an old coin
• Create a brochure for investors interested in buying coins, jewels, and artifacts from the shipwreck site and provide information to convince them the items are a good investment
• Create a research report on the origin of the coins, jewels and artifacts and the route that the ship carrying them took
• Create a multimedia presentation showcasing different items found on the shipwreck</td></tr>
<tr><td colspan="2">Interdisciplinary Connections:
Language Arts:
• W.7.2.A. Introduce a topic clearly, previewing what is to follow; 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).
• W.7.2.B. Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.
• W.7.3.B. Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.
• W.7.4. Produce clear and coherent writing in which the development, organization, voice and style are appropriate to task, purpose, and audience.
• W.7.5. 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.
• 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.
• (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.
• W.7.10. Write routinely over extended time frames (time for research, reflection, metacognition/self correction, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.</td></tr>
</table>

S.T.E.A.M. (Enrichment)

- SL.7.4. Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
- SL.7.6. Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.
- L.7.3.A. Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.
- L.7.6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Stage 2: Assessment Evidence

Performance Task(s):

- Students have a choice of three:
  - Coin Proposal
  - Radio Broadcast (Podcast)
  - Brochure
  - Research Paper/Report
  - Photostory

Other Evidence:

- Online assignments
- Exit Tickets
- Worksheets
- Do Nows

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Lesson 1- Engage/Hook & Introduction: Hook students and introduce topic
Lesson 2 - Explore Task Themes & Provide Context: Provide background information
Lesson 3 - Review Products & Develop/Refine Research Questions: Review possible products (performance tasks) and develop research questions
Lesson 4 - Conduct Research: Complete research to answer questions
Lesson 5 - Produce the Products: Choose two products and complete
Lesson 6 - Feedback: Receive and process given feedback
Lesson 7 - Revise Product: Revise products based on feedback
Lesson 8 - Present Product: Present product to peers

Resources:

- Lesson Presentations
- Google Docs
- Google Forms
- Google Classroom
- definedlearning.com

LGBT and Disabilities Law Resources:

- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities

DEI Resources:

- Learning for Justice
- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities
- NJDOE Diversity, Equity & Inclusion Educational Resources
- Diversity Calendar

Differentiation
*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

S.T.E.A.M. (Enrichment)

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Higher order thinking questions Differentiation of pacing and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension	Differentiation of learning strategies: visual, auditory, kinetic and cooperative Differentiating the lesson activities Lesson tutorials	Provide a highly structured, predictable learning environment Provide organizers Lessons designed to the style of learning that matches the student Cooperative Learning Positive reinforcement Lessons presentation available on google classroom Frequent check for understanding Break down task into manageable units One-on-one instruction Pair student with a high achieving student	Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries

Unit Title: Farm-To-Table Entrepreneur

Stage 1: Desired Results

Standards & Indicators: **2020 NJSLS – Computer Science and Design Thinking**

8.2.8.ED.2: Identify the steps in the design process that could be used to solve a problem.
8.2.8.ED.3: Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch).
8.2.8.ED.7: Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries	Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.
9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.	There is a need to produce and publish media that has information supported with quality evidence and is intended for authentic audiences.

S.T.E.A.M. (Enrichment)

Central Idea/Enduring Understanding:	**Essential/Guiding Question:**
Students should be able to create various products to complete the following “real-world” scenario: “Your region has many local farms that utilize organic farming techniques. As a member of a group of entrepreneurs who have spent a great deal of time working in the restaurant industry, you have been approached by many customers looking for a restaurant offering locally grown, sustainable whole foods. This concept has great potential, but also has great risk if you are unable to attract people to your restaurant. Many people consider healthier foods to not taste as good as foods they are more accustomed to eating in restaurants.”	● What are some challenges of owning a restaurant? ● How does math relate to the restaurant business?
Content: Lesson 1- Engage/Hook & Introduction Lesson 2 - Explore Task Themes & Provide Context Lesson 3 - Review Products & Develop/Refine Research Questions Lesson 4 - Conduct Research Lesson 5 - Produce the Products Lesson 6 - Feedback Lesson 7 - Revise Product Lesson 8 - Present Product	**Skills(Objectives):** ● Communicate and collaborate with classmates in order to solve a problem ● Identify different strategies used to solve a problem ● Research answers to questions using the “Research Resources” section of the task, class materials, books, the internet or expert consults ● Create a name, logo, and slogan for a restaurant that symbolizes the concept ● Create a sales pitch to explain why the restaurant is worth a visit and provide examples of food ● Create a menu for the restaurant following given criteria and constraints, calculate the cost of each dish and determine a price markup ● Create a magazine article for the local community persuading readers to come to your restaurant ● Create a social media page to highlight the name, menu, and slogan of the restaurant, as well as educate people on the ideas and concepts of the restaurant

Interdisciplinary Connections:

Mathematics:

- 7.NS.A.3. Solve real-world and mathematical problems involving the four operations with rational numbers.
- 7.EE.B.3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
- 7.EE.B.4.a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
- 7.EE.B.4.b. Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
- 7.RP.A.1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
- 7.NS.A.3.) Solve real-world and mathematical problems involving the four operations with rational numbers.

S.T.E.A.M. (Enrichment)

Science:

- MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
- MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Language Arts:

- W.7.4. Produce clear and coherent writing in which the development, organization, voice and style are appropriate to task, purpose, and audience.
- RI.7.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.
- 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.
- RI.7.4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.

Stage 2: Assessment Evidence

Performance Task(s):

- Students have a choice of three:
  - Design
  - Restaurant Unveiling
  - Proposed Menu
  - Magazine Article
  - Social Media Page

Other Evidence:

- Online assignments
- Exit Tickets
- Worksheets
- Do Nows

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Lesson 1- Engage/Hook & Introduction: Hook students and introduce topic
Lesson 2 - Explore Task Themes & Provide Context: Provide background information
Lesson 3 - Review Products & Develop/Refine Research Questions: Review possible products (performance tasks) and develop research questions
Lesson 4 - Conduct Research: Complete research to answer questions
Lesson 5 - Produce the Products: Choose two products and complete
Lesson 6 - Feedback: Receive and process given feedback
Lesson 7 - Revise Product: Revise products based on feedback
Lesson 8 - Present Product: Present product to peers

Resources:

- Lesson Presentations
- Google Docs
- Google Forms
- Google Classroom
- definedlearning.com

LGBT and Disabilities Law Resources:

- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities

DEI Resources:

- Learning for Justice
- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities
- NJDOE Diversity, Equity & Inclusion Educational Resources
- Diversity Calendar

S.T.E.A.M. (Enrichment)

Differentiation
*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Higher order thinking questions Differentiation of pacing and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension	Differentiation of learning strategies: visual, auditory, kinetic and cooperative Differentiating the lesson activities Lesson tutorials	Provide a highly structured, predictable learning environment Provide organizers Lessons designed to the style of learning that matches the student Cooperative Learning Positive reinforcement Lessons presentation available on google classroom Frequent check for understanding Break down task into manageable units One-on-one instruction Pair student with a high achieving student	Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries

Unit Title: Genius Hour (8th Grade Only)

Stage 1: Desired Results

Standards & Indicators: **2020 NJSLS – Computer Science and Design Thinking**
8.2.8.ED.2: Identify the steps in the design process that could be used to solve a problem.
8.2.8.ED.3: Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch).
8.2.8.ED.7: Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries	Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.
9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.	There is a need to produce and publish media that has information supported with quality evidence and is intended for authentic audiences.

S.T.E.A.M. (Enrichment)

Central Idea/Enduring Understanding:	**Essential/Guiding Question:**
Engage and empower students by connecting them with the ideas and content and opportunities themselves by allowing them to pick something they want to learn more about, do, or accomplished, and then do exactly that following their curiosity through inquiry and research. Each students' central idea is different based on their interest.	Students essential/guiding questions are determined based on the topic of study.
Content: Lesson 1- Introduction to Genius Hour Lesson 2 - Finding Your Passion Lesson 3 - What are Thick and Thin Questions? Lesson 4 - The Pitch/Pitch Tank Lesson 5 - Final Piece Lesson 6 - Presentation Lesson 7 - Reflection Letter	**Skills(Objectives):** • Design own learning • Explore own curiosity through a self manifested sense of purpose • Specific objectives are determined by each students' project
Interdisciplinary Connections: Students have the option to pick a topic from any subject area and these connections change based on the student's topic	

Stage 2: Assessment Evidence

Performance Task(s):	**Other Evidence:**
• The Pitch Presentation • The Final Presentation and Reflection Letter	• Online assignments • Exit Tickets • Worksheets • Do Nows • Check-ins

Stage 3: Learning Plan

Learning Opportunities/Strategies:	**Resources:**
Lesson 1- Introduction to Genius Hour: Introduce topic and discuss importance **Lesson 2 - Finding Your Passion:** Discover various passions and pick a final topic **Lesson 3 - What are Thick and Thin Questions?:** Discuss difference between thick and thin questions and develop a thick question based on the topic **Lesson 4 - The Pitch/Pitch Tank:** Develop an elevator pitch sharing project idea, plans to complete, and worthiness of project	• Lesson Presentations • Google Docs • Google Forms • Google Classroom • definedlearning.com LGBT and Disabilities Law Resources: • GLSEN Educator Resources • Supporting LGBTQIA Youth Resource List • Respect Ability: Fighting Stigmas, Advancing Opportunities

S.T.E.A.M. (Enrichment)

Lesson 5 - Final Piece: Complete project and create a presentation to share your findings, creation, and progress **Lesson 6 - Presentation:** Present findings and product to class and answer peer questions **Lesson 7 - Reflection Letter:** Complete a reflection letter explaining obstacles, successes, and the most important thing student learned	DEI Resources: ● Learning for Justice ● GLSEN Educator Resources ● Supporting LGBTQIA Youth Resource List ● Respect Ability: Fighting Stigmas, Advancing Opportunities ● NJDOE Diversity, Equity & Inclusion Educational Resources ● Diversity Calendar

Differentiation

*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Higher order thinking questions Differentiation of pacing and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension	Differentiation of learning strategies: visual, auditory, kinetic and cooperative Differentiating the lesson activities Lesson tutorials	Provide a highly structured, predictable learning environment Provide organizers Lessons designed to the style of learning that matches the student Cooperative Learning Positive reinforcement Lessons presentation available on google classroom Frequent check for understanding Break down task into manageable units One-on-one instruction Pair student with a high achieving student	Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries

S.T.E.A.M. (Enrichment)

Pacing Guide

Coding (CS Discoveries)	Resource	Standards
Crime Scene Investigation (22 days)	**Lessons:** Lesson 1- Engage/Hook & Introduction: 1 day Lesson 2 - Explore Task Themes & Provide Context: 1 day Lesson 3 - Review Products & Develop/Refine Research Questions: 1 day Lesson 4 - Conduct Research: 3 days Lesson 5 - Produce the Products: 5 days Lesson 6 - Feedback: 1 day Lesson 7 - Revise Product: 2 days Lesson 8 - Fingerprint Lesson: 2 days Lesson 9 - Impression Evidence: 1 day Lesson 10 - DNA as Evidence: 1 day Lesson 11 - Calculating Time of Death: 2 days Lesson 12 - Evidence Puzzler:1 day Lesson 13 - Murder Mystery: 2 days	8.2.8.ED.2 8.2.8.ED.3 8.2.8.ED.7
Artificial Island Real Estate Agent (22 Days)	**Lessons:** Lesson 1- Engage/Hook & Introduction: 1 day Lesson 2 - Explore Task Themes & Provide Context: 1 day Lesson 3 - Review Products & Develop/Refine Research Questions: 1 day	8.2.8.ED.2 8.2.8.ED.3 8.2.8.ED.7

S.T.E.A.M. (Enrichment)

	Lesson 4 - Conduct Research: 4 days Lesson 5 - Produce the Products: 8 days Lesson 6 - Feedback: 2 days Lesson 7 - Revise Product: 2 days Lesson 8 - Present Product: 2-3 days	
Coast-To-Coast Trip: Travel Agent (22 Days)	**Lessons:** Lesson 1- Engage/Hook & Introduction: 1 day Lesson 2 - Explore Task Themes & Provide Context: 1 day Lesson 3 - Review Products & Develop/Refine Research Questions: 1 day Lesson 4 - Conduct Research: 4 days Lesson 5 - Produce the Products: 8 days Lesson 6 - Feedback: 2 days Lesson 7 - Revise Product: 2 days Lesson 8 - Present Product: 2-3 days	8.2.8.ED.2 8.2.8.ED.3 8.2.8.ED.7
Food Truck Entrepreneur (22 Days)	**Lessons:** Lesson 1- Engage/Hook & Introduction: 1 day Lesson 2 - Explore Task Themes & Provide Context: 1 day Lesson 3 - Review Products & Develop/Refine Research Questions: 1 day Lesson 4 - Conduct Research: 4 days	8.2.8.ED.2 8.2.8.ED.3 8.2.8.ED.7

S.T.E.A.M. (Enrichment)

	Lesson 5 - Produce the Products: 8 days Lesson 6 - Feedback: 2 days Lesson 7 - Revise Product: 2 days Lesson 8 - Present Product: 2-3 days	
Mars Transportation Consultant: Creating a Spaceport (22 Days)	**Lessons:** Lesson 1- Engage/Hook & Introduction: 1 day Lesson 2 - Explore Task Themes & Provide Context: 1 day Lesson 3 - Review Products & Develop/Refine Research Questions: 1 day Lesson 4 - Conduct Research: 4 days Lesson 5 - Produce the Products: 8 days Lesson 6 - Feedback: 2 days Lesson 7 - Revise Product: 2 days Lesson 8 - Present Product: 2-3 days	8.2.8.ED.2 8.2.8.ED.3 8.2.8.ED.7
Historian: Shipwreck (22 Days)	**Lessons:** Lesson 1- Engage/Hook & Introduction: 1 day Lesson 2 - Explore Task Themes & Provide Context: 1 day Lesson 3 - Review Products & Develop/Refine Research Questions: 1 day Lesson 4 - Conduct Research: 4 days Lesson 5 - Produce the Products: 8 days	8.2.8.ED.2 8.2.8.ED.3 8.2.8.ED.7

S.T.E.A.M. (Enrichment)

	Lesson 6 - Feedback: 2 days Lesson 7 - Revise Product: 2 days Lesson 8 - Present Product: 2-3 days	
Farm-To-Table Entrepreneur (22 Days)	**Lessons:** Lesson 1- Engage/Hook & Introduction: 1 day Lesson 2 - Explore Task Themes & Provide Context: 1 day Lesson 3 - Review Products & Develop/Refine Research Questions: 1 day Lesson 4 - Conduct Research: 4 days Lesson 5 - Produce the Products: 8 days Lesson 6 - Feedback: 2 days Lesson 7 - Revise Product: 2 days Lesson 8 - Present Product: 2-3 days	8.2.8.ED.2 8.2.8.ED.3 8.2.8.ED.7
Genius Hour (22 Days)	**Lessons:** Lesson 1- Introduction to Genius Hour: 2 days Lesson 2 - Finding Your Passion: 2 days Lesson 3 - What are Thick and Thin Questions?: 1 day Lesson 4 - The Pitch/Pitch Tank: 6 days Lesson 5 - Final Piece: 6-7 days Lesson 6 - Presentation: 2-3 days Lesson 7 - Reflection Letter: 2 days	8.2.8.ED.2 8.2.8.ED.3 8.2.8.ED.7