



STEAM LIBRARY MEDIA 6TH GRADE

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Approved by: Nutley Board of Education, Effective Fall 2019

Updated by: Jessica Shoja, Fall 2023

Scope and Sequence

Month	Topic
September - Trimester 1	Unit 1 - Applied Digital Skills
October - Trimester 1	
November - Trimester 1	
December - Trimester 2	Unit 2 - Global Innovation Through Engineering Design
January - Trimester 2	
February - Trimester 2	
March - Trimester 2/3	Unit 3 - STEAM Applications
April - Trimester 3	
May - Trimester 3	
June - Trimester 3	



Unit 1 - Applied Digital Skills

Summary and Rationale

In this unit, the instructional focus will be on building students' digital and practical life skills with Google lessons/projects that are engaging, relevant, and connected to the real world. Students will learn positive and negative aspects of technology use and begin to think about how they use digital devices. They will reflect on and discuss digital habits to create a healthy technology balance in their own lives.

Recommended Pacing

Trimester 1 (September - November)

Standards

NJSLS 9.4 Life Literacies and Key Skills

Creativity and Innovation

9.4.8.CI.3	Examine challenges that may exist in the adoption of new ideas
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Critical Thinking and Problem-Solving

9.4.8.CT.1	Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to a local or global problem, such as climate change, and use critical thinking skills to predict which one(s) are likely to be effective.
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9.4.8.CT.2	Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option.
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9.4.8.CT.3	Compare past problem-solving solutions to local, national, or global issues and analyze the factors that led to a positive or negative outcome.
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Global and Cultural Awareness

9.4.8.IML.1	Critically curate multiple resources to assess the credibility of sources when searching for information.
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9.4.8.IML.2	Identify specific examples of distortion, exaggeration, or misrepresentation of information.
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9.4.8.IML.3	Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping.
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9.4.8.IML.4	Ask insightful questions to organize different types of data and create meaningful visualizations.
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9.4.8.IML.5	Analyze and interpret local or public data sets to summarize and effectively communicate the data.
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9.4.8.IML.11	Predict the personal and community impact of online and social media activities.
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9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.
Technology Literacy	
9.4.8.TL.1	Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.
9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem.
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.
9.4.8.TL.4	Synthesize and publish information about a local or global issue or event.
2020 NJSLS Comprehensive Health and Physical Education	
Standard 2.1 Personal and Mental Health	
Personal Growth and Development	
2.1.12.PGD.1	Develop a health care plan that includes practices and strategies designed to support an active lifestyle, attend to mental health, and foster a healthy, social and emotional life.
2.1.12.PGD.2	Predict how healthy and unhealthy behaviors can affect brain development and impact physical, social and emotional stages of early adulthood.
Emotional Health	
2.1.12.EH.1	Recognize one's personal traits, strengths, and limitations and identify how to develop skills to support a healthy lifestyle.
2.1.12.EH.3	Describe strategies to appropriately respond to stressors in a variety of situations (e.g., academics, relationships, shootings, death, car accidents, illness).
Personal Safety	
2.3.12.PS.1	Apply a thoughtful decision-making process to evaluate situations and influences that could lead to healthy or unhealthy consequences (e.g., peers, media).
Instructional Focus	
Enduring Understandings: (EU) <i>Students will understand that...</i>	Essential Questions: <i>Students will keep considering...</i>
EU 1.A: It is important for personal health to balance screen time with other activities. EU 1.B: I can practice good/healthy digital habits.	How does screen time affect my personal health? What is a healthy technology balance for me? How can I support healthy digital habits in my community?

<p>EU 1.C: I can teach others about digital well-being and healthy digital habits.</p>	
<p>Evidence of Learning (Assessments)</p>	
<p>PERFORMANCE ASSESSMENT(S) <i>Students will show that they really understand by evidence of...</i></p> <ol style="list-style-type: none"> 1. A digital activities journal - Students create an activity journal to reflect on digital habits and device use in their lives for one week. 2. A digital well-being pledge - Students learn why conversations are important for building good digital habits. They will interview adults about technology use and create a written pledge to use digital devices in healthy ways. 3. A digital class or group project to share information about good digital habits. - Students choose to create a poster, digital site, or slides presentation to share information and personal stories about digital well-being and balancing digital and non-digital activities. <p>The main objective of these lessons is to assist students in forming their own definition and understanding of healthy digital habits. Students’ digital projects can be assessed using the BUILD HEALTHY DIGITAL HABITS RUBRIC. Other assessment should be conducted through prompted discussion as a class or in groups during and after each individual lesson. Prompts for discussion are available in the LESSON APPENDIX.</p>	
<p>Objectives (SLO)</p>	
<p>ESSENTIAL KNOWLEDGE (EK) <i>Students will know...</i></p> <p>EK 1.A</p> <ul style="list-style-type: none"> ● Digital and non-connected activities ● Screen time and personal health ● Google Suite - Forms, Sheets, Docs <p>EK 1.B</p> <ul style="list-style-type: none"> ● “Technology balance” ● Digital well-being ● Healthy digital habits ● Interview ● Guidelines ● Pledge <p>EK 1.C</p> <ul style="list-style-type: none"> ● Digital citizenship ● Collaboration ● Financial wellness ● Personal Growth and Development ● Emotional Health 	<p>LEARNING OBJECTIVES (LO) <i>Students will be skilled at...</i></p> <p>LO 1.A.1: Document digital and other activities. LO 1.A.2: Track feelings related to digital and other activities. LO 1.A.3: Compare and reflect on feelings related to “screen time” and the role technology plays in one’s life.</p> <p>LO 1.B.1: Create questionnaires and conduct interviews to gather information about technology use. LO 1.B.2: Collaborate with teachers and families/guardians to set healthy, realistic guidelines for technology use. LO 1.B.3: Self-regulate technology usage. LO 1.B.4: Discuss the implications of technology and other activities on financial well-being, and mental well-being (including brain development and physical, social and emotional stages of early adulthood). LO 1.B.5: Evaluate decisions that could lead to healthy and unhealthy digital habits and well-being</p> <p>LO 1.C.1: Develop multiple solutions for people to develop good digital habits and well-being. LO 1.C.2: Share knowledge and opinions about digital well-being and healthy digital habits with others/community.</p>

Suggested Resources/Technology Tools

Google Lesson Plans: Build Healthy Digital Habits
Google Online Learning Modulers: Build Healthy Digital Habits
Schoology
Google Suite

1.A. Create an Activities Journal **SUGGESTED TIMEFRAME: 2-3 class periods**

- Introduce the lesson (see Appendix for suggested prompts).
- Describe the lessons and their outcomes (see Appendix for suggested prompts).
- Group students in pairs or groups.
- Guide students to sign in to their profile at g.co/applieddigitalskills.
- Check in with students. Meet 1:1 or in small groups as students watch videos 1-6 (see Appendix for suggested prompts):
 - Video 1: Introduction to Build Healthy Digital Habits
 - Video 2: Start Your Journal
 - Video 3: Fill in Digital Activities
 - Video 4: Fill in Other Types of Activities
 - Video 5: Choose Emojis
 - Video 6: Reflect on Your Activities and Share
 - Video 7: Create an Activities Journal Wrap-Up
- Complete a Wrap-up/Discussion (see Appendix for suggested prompts).
- Technology Tools: Google Slides - Starter Project and Example Project

1.B. Pledge to Build a Better Digital Balance **SUGGESTED TIMEFRAME: 2-3 class periods**

- Introduce the lesson (see Appendix for suggested prompts).
- Describe the lessons and their outcomes (see Appendix for suggested prompts).
- Group students in pairs or groups. Guide students to sign into their profile at g.co/applieddigitalskills.
- Check in with students. Meet 1:1 or in small groups as students watch videos 1-6 (see Appendix for suggested prompts):
 - Video 1: Prepare for Digital Habits Interviews
 - Video 2: Prepare Interview Questionnaires
 - Video 3: Conduct Your Interviews
 - Video 4: Create Your Pledge
 - Video 5: Share Your Digital Well-being Pledge
 - Video 6: Pledge to Build Better Digital Balance Wrap-Up
- Complete a Wrap-up/Discussion (see Appendix for suggested prompts).
- Technology Tools: Google Docs, Starter Project, Paper Questionnaire, Example Project

1.C. Share Information about Good Digital Habits **SUGGESTED TIMEFRAME: 3-4 class periods**

- Introduction: Prompt students to think about what important things they learned and would like to share with others about building healthy digital habits. (see Appendix for suggested prompts)
- Group students in groups of two or more.
- If you are assigning topics, you can:
 - Assign specific topics.
 - Suggest specific topics (okay to repeat across groups).
 - Leave open-ended for students to determine topics.

- Check in with students. Meet 1:1 or in small groups as students watch videos 1-4 (see Appendix for suggested prompts)
 - Video 1: Prepare for Your Class or Group Project
 - Video 2: Choose and Plan Your Project
 - Video 3: Make Your Posters
 - Video 4: Create a Website
 - Video 5: Make a Slides Presentation
 - Video 6: Share Information About Good Digital Habits Wrap-Up
- Complete Wrap-Up/Discussion (see Appendix for suggested prompts).
- Technology Tools: Depending on which type of project - Poster in Google Drawings, Website in Google Sites, Presentation in Google Slides, Starter Project Planning Document, Example Project Planning Document, Example Project Poster, Example Project Website, Example Project Presentation

Career Readiness, Life Literacies, and Key Skills Practices

Please select all career readiness, life literacies, and key skills practices that apply to this unit of study:

- ✓ Act as a responsible and contributing community member and employee.
- Attend to financial well-being.
- Consider the environmental, social, and economic impacts of decisions.
- ✓ Demonstrate creativity and innovation.
- ✓ Utilize critical thinking to make sense of problems and persevere in solving them.
- ✓ Model integrity, ethical leadership, and effective management.
- Plan education and career paths aligned to personal goals.
- ✓ Use technology to enhance productivity, increase collaboration and communicate effectively.
- ✓ Work productively in teams while using cultural/global competence.

For more information: New Jersey Student Learning Standards - Career Readiness, Life Literacies, and Key Skills (pages 15-16)

Modifications

Special Education

- Students' personal device used to log in and access websites
- Flexible seating arrangements, and movement breaks
- Call student name before asking a question
- Extend wait time after asking question
- Scaffolded instructions
- Sensory modifications
- Frequent check-ins
- Extended time or modified assignments

ELL

- Spanish book section of library
- Spanish translated materials
- Visual aids
- Opportunities for language practice in groups, language buddies

Gifted and Talented

- Extension STEAM activities provided
- Independent research

- Team leads
- Self-directed assessments

504

- Preferential seating
- Verbal, visual, and technology aids used
- Behavior management support, movement breaks
- Provide a quiet space, if necessary, to minimize distractions
- Accessible materials, as per student needs (large print, audio, digital texts, etc.)
- Frequent check-ins
- Extended time or modified assignments

Virtual

- Utilize online learning platforms (i.e., Google Meet and Schoology) to meet with students virtually.
- Virtual demonstrations and discussions.
- Regular check-ins with groups.
- Incorporate interactive elements such as polls, breakout rooms, and discussions to maintain engagement.

Unit 2 - Global Innovation Through Engineering Design

Summary and Rationale

This unit will focus on a dynamic exploration of the engineering design process fused with the integration of diverse global perspectives. This unit aims to foster creativity, critical thinking, and problem-solving skills while addressing real-world challenges through an interdisciplinary approach.

Recommended Pacing

Trimester 2 (December-March)

Standards

NJSLS 9.4 Life Literacies and Key Skills

Creativity and Innovation

9.4.8.CI.1	Assess data gathered on varying perspectives on causes of climate change (e.g., crosscultural, gender-specific, generational), and determine how the data can best be used to design multiple potential solutions.
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9.4.8.CI.3	Examine challenges that may exist in the adoption of new ideas
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Critical Thinking and Problem-Solving

9.4.8.CT.1	Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to a local or global problem, such as climate change, and use critical thinking skills to predict which one(s) are likely to be effective.
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9.4.8.CT.2	Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option.
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9.4.8.CT.3	Compare past problem-solving solutions to local, national, or global issues and analyze the factors that led to a positive or negative outcome.
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Digital Citizenship

9.4.8.DC.1	Analyze the resource citations in online materials for proper use.
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9.4.8.DC.2	Provide appropriate citation and attribution elements when creating media products.
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Global and Cultural Awareness

9.4.8.GCA.1	Model how to navigate cultural differences with sensitivity and respect.
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9.4.8.GCA.2	Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group
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	goal.
Information and Media Literacy	
9.4.8.IML.1	Critically curate multiple resources to assess the credibility of sources when searching for information.
9.4.8.IML.7	Use information from a variety of sources, contexts, disciplines, and cultures for a specific purpose.
9.4.8.IML.8	Apply deliberate and thoughtful search strategies to access high-quality information on climate change.
9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.
Technology Literacy	
9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem.
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.
9.4.8.TL.4	Synthesize and publish information about a local or global issue or event.
9.4.8.TL.6	Collaborate to develop and publish work that provides perspectives on a real-world problem.
Instructional Focus	
Enduring Understandings: (EU) <i>Students will understand that...</i>	Essential Questions: <i>Students will keep considering...</i>
EU 2.A: Using a variety of sources and global perspectives promotes innovative thinking and creativity. EU 2.B: The engineering design process is a cyclical method that involves exploration, iteration, and continuous improvement.	How do global perspectives contribute to different approaches to problem-solving and innovation? How can the engineering design process be applied to develop effective solutions with a global perspective?
Evidence of Learning (Assessments)	
<p>PERFORMANCE ASSESSMENT(S) G.R.A.S.P.S <i>Students will show that they really understand by evidence of...</i></p> <p>Goal: To research and present a solution for a specific global issue. Explain how the scientist(s) applied the engineering design process and incorporated diverse perspectives.</p> <p>Role: You are a team of engineers tasked with presenting an innovative solution to address a global problem.</p> <p>Audience: The audience comprises fellow classmates and teacher(s).</p>	

Situation: In our interconnected world, there are pressing global challenges that require creative and thoughtful solutions. Your task is to identify a significant global issue and present on one of more of the innovative solution(s) and how the product/solution has evolved over time (or how the engineering design process was used).

Product/Performance: Teams will create a comprehensive presentation of their solution. The presentation should include visual aids, such as slides or posters, and/or a physical or digital prototype demonstrating the solution.

Purpose: The purpose of this assessment is to demonstrate your understanding of the engineering design process, incorporate diverse global perspectives, and showcase how innovative problem-solving skills were used to address real-world challenges.

Bonus: Include ideas for improving on the design/product/solution

Standards/Criteria for Success:

- Problem Definition (Define the Problem): Clearly articulate the global issue chosen and its significance, providing relevant context and background information.
- Research (Research and Generate Ideas): Conduct thorough research on the chosen global issue, including different perspectives from various regions or cultures, and use this information to inform how the design process has evolved.
- Innovation and Creativity (Generate Ideas): Present innovative and creative design solutions that address the global problem effectively, considering diverse perspectives.
- Application of Engineering Design Process (Prototype): Show the evolution of the product, including iterations, testing, and improvements evident in the prototype.
- Effectiveness and Feasibility (Test and Evaluate): Report on its functionality, feasibility, and potential impact on solving the global issue.
- Communication and Presentation Skills: Deliver a well-organized and engaging presentation that effectively communicates the problem, the design process, and the proposed solution to the audience.

Assessment Rubric

Objectives (SLO)

ESSENTIAL KNOWLEDGE (EK)

Students will know...

EK 2.A

- Research
- Databases
- Global issues and perspectives

EK 2.B

- Synthesize knowledge
- Engineering Design Process
 - Define the problem
 - Research
 - Generate ideas
 - Build a prototype
 - Test and Evaluate

LEARNING OBJECTIVES (LO)

Students will be skilled at...

- LO 2.A.1: Explore various sources of information (books, articles, websites, etc.) to understand different perspectives on global issues (ex. An innovation related to climate change).
- LO 2.A.2: Discuss how different cultures and regions tackle common problems.
- LO 2.A.3: Conduct small research on a global issue.
- LO 2.A.4: Provide proper credit and citations.
- LO 2.B.1: Analyze innovations of the global issue using the EDP.
- LO 2.B.2: Discuss problem-solving methodologies and how various global perspectives contribute to innovative solutions.
- LO 2.B.2: Work collaboratively to present a project solution to a global issue.

Suggested Lesson Resources/Technology Tools

Schoology

Google Suite

Teaching Resources:

Books and Articles:

- "The Way Things Work Now" by David Macaulay - Illustrates principles of engineering and how things work, inspiring creativity.
- "Engineering: A Beginner's Guide" by Natasha McCarthy - Introduces engineering concepts and the design process in an accessible manner for young learners.
- "Global Problem Solving: Intercultural Business Case Studies" by Elsa L. Ascencio and Raphael R. Dapaah - Provides case studies highlighting diverse global perspectives in problem-solving.

Websites and Online Platforms:

- National Geographic Education - Engineering Resources - Offers lesson plans, articles, and activities related to engineering design and global issues.
- TeachEngineering.org - Provides a wide range of STEM curriculum resources and hands-on activities related to the engineering design process.
- Google Arts & Culture - Global Perspectives Collection - Explores various global perspectives through art, history, and cultural exhibitions.

Hands-On Materials and Kits:

- TBD

Videos and Documentaries:

- PBS NOVA: "The Global Collection" - Explores global challenges and innovative solutions from around the world.
- The Engineering Process: Crash Course Kids

Sample Projects and Assessments:

- Engineering Design Challenge Cards - Provides project ideas and challenges that encourage students to apply the engineering design process.
- Global Issue Case Studies - Presents case studies of global problems for students to analyze, research, and propose solutions using the EDP.
- Model Prototypes and Presentations - Examples of student-created prototypes and presentations that demonstrate the application of the design process and global perspectives.

Please select all career readiness, life literacies, and key skills practices that apply to this unit of study:

- ✓ Act as a responsible and contributing community member and employee.
- ☐ Attend to financial well-being.
- ✓ Consider the environmental, social, and economic impacts of decisions.
- ✓ Demonstrate creativity and innovation.
- ✓ Utilize critical thinking to make sense of problems and persevere in solving them.
- ✓ Model integrity, ethical leadership, and effective management.
- ☐ Plan education and career paths aligned to personal goals.
- ✓ Use technology to enhance productivity, increase collaboration and communicate effectively.
- ✓ Work productively in teams while using cultural/global competence.

For more information: New Jersey Student Learning Standards - Career Readiness, Life Literacies, and Key Skills (pages 15-16)

Modifications

Special Education

- Students' personal device used to log in and access websites
- Flexible seating arrangements, and movement breaks
- Call student name before asking a question
- Extend wait time after asking question
- Scaffolded instructions
- Sensory modifications
- Frequent check-ins
- Extended time or modified assignments

ELL

- Spanish book section of library
- Spanish translated materials
- Visual aids
- Opportunities for language practice in groups, language buddies

Gifted and Talented

- Extension STEAM activities provided
- Independent research
- Team leads
- Self-directed assessments

504

- Preferential seating
- Verbal, visual, and technology aids used
- Behavior management support, movement breaks
- Provide a quiet space, if necessary, to minimize distractions
- Accessible materials, as per student needs (large print, audio, digital texts, etc.)
- Frequent check-ins
- Extended time or modified assignments

Virtual

- Utilize online learning platforms (i.e., Google Meet and Schoology) to meet with students virtually.
- Virtual demonstrations and discussions.
- Regular check-ins with groups.

- Incorporate interactive elements such as polls, breakout rooms, and discussions to maintain engagement.

Unit 3 - STEAM Applications

Summary and Rationale

STEAM (Science, Technology, Engineering, Arts, Mathematics) is an investigative process that encourages students to evaluate multiple perspectives and connect concepts in order to solve a problem. Collaborative STEAM projects promote equality and innovation in the Media Center. Students will discover the unique advantages of each content area, understand the interconnectedness of subjects, and demonstrate their proficiency through a culminating assessment: the Egg Drop Challenge.

Recommended Pacing

Trimester 3 (March/April- June)

Standards

NJSLS 9.4 Life Literacies and Key Skills

Creativity and Innovation

9.4.8.CI.2: Repurpose an existing resource in an innovative way.

9.4.8.CI.3 Examine challenges that may exist in the adoption of new ideas

Critical Thinking and Problem-Solving

9.4.8.CT.2 Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option.

Global and Cultural Awareness

9.4.8.GCA.2 Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal.

Instructional Focus

Enduring Understandings: (EU)

Students will understand that...

EU 3.A: Through the fusion of STEAM disciplines and the Engineering Design Process (EDP), students gain the ability to approach real-world problems systematically, utilizing creativity, critical thinking, and diverse perspectives to innovate solutions that address challenges.

Essential Questions:

Students will keep considering...

How can collaborative integration of Science, Technology, Engineering, Arts, and Mathematics (STEAM) alongside the Engineering Design Process (EDP) be used to innovate and solve challenges effectively?

Evidence of Learning (Assessments)

Students will show that they really understand by evidence of...

Objective: To assess students' ability to apply interdisciplinary STEAM concepts in designing and constructing a container to protect an egg during a simulated drop.

- Students present their solutions to the chosen problem through the Egg Drop Challenge.
- Each team designs a container using STEAM principles to protect an egg from breaking when dropped from a specific height.
- Teams explain the scientific, engineering, mathematical, and artistic concepts incorporated into their designs.
- Evaluate the success of each team's solution based on the effectiveness of the container in protecting the egg.

Criteria for Assessment:

Design and Creativity (10 points)

- Innovative and original design elements incorporated into the container.
- Creative use of materials and resources to protect the egg.

Interdisciplinary Integration (15 points)

- Demonstrates clear integration of concepts from at least three STEAM disciplines (Science, Technology, Engineering, Arts, Mathematics).
- Shows how each discipline contributes to the design and construction.

Technical Application (15 points)

- Accuracy in applying scientific principles and engineering concepts in the container design.
- Effective use of mathematical calculations or measurements where applicable.

Structural Integrity (20 points)

- Stability and durability of the container structure.
- Ability to withstand the impact of the drop without damage to the egg.

Artistic Elements (10 points)

- Aesthetic appeal of the container design.
- Thoughtful incorporation of artistic elements without compromising functionality.

Presentation and Explanation (10 points)

- Clarity and coherence in explaining the design choices.
- Effective communication of how STEAM disciplines were utilized.

Collaboration and Teamwork (10 points)

- Active participation and collaboration within the team.
- Contributions of each team member to the overall project.

Overall Effectiveness (10 points)

- Overall success in protecting the egg during the drop.
- Overall impression of the design, functionality, and execution of the project.

Scoring:

- Excellent (9-10 points): Exceeds expectations, demonstrates exceptional understanding and execution.
- Proficient (6-8 points): Meets expectations, shows a solid understanding and execution.
- Developing (3-5 points): Some aspects meet expectations, but improvements needed in understanding and execution.
- Beginning (0-2 points): Limited understanding or execution demonstrated.

Assessment Procedure:

- Each team will present their egg drop container to the class.
- Teams will explain their design, demonstrate its features, and justify their choices.
- Rubric will be used to assess and score each team's container and presentation.

Objectives (SLO)

ESSENTIAL KNOWLEDGE (EK)

Students will know...

EK 3.A

- STEAM - Science, technology, engineering, arts, mathematics
- Egg Drop Challenge - science concepts of Construction success, gravity, force, acceleration, measurement, weight, and height.

LEARNING OBJECTIVES (LO)

Students will be skilled at...

- LO 3.A.1: Define STEAM and its components.
- LO 3.A.2: Discuss the importance of interdisciplinary collaboration.
- LO 3.A.3: Explore case studies and examples where STEAM integration has led to innovative solutions.
- LO 3.A.4: Brainstorm potential real-world problems that could be solved through STEAM collaboration
- LO 3.A.5: Construct a container using STEAM principles to allow an egg to safely fall from varying heights without breaking.
- LO 3.A.6: Communicate ideas through group collaboration and evaluating data before, during, and after trials.
- LO 3.A.7: explain the scientific, engineering, mathematical, and artistic concepts incorporated into their designs.

Suggested Resources/Technology Tools

Teaching Resources:

Websites and Online Platforms:

- STEAM Learning Platforms: Khan Academy, Code.org, Scratch.mit.edu, Tinkercad, etc., offering interactive lessons and projects across STEAM subjects.
- NASA STEM Engagement: Provides resources, projects, and challenges related to space, science, engineering, and technology.
- National Science Foundation (NSF) Education Resources: Offers various educational materials, lesson plans, and activities.
- ArtsEdge by Kennedy Center: Integrates arts into learning, providing resources, lessons, and activities.
- Desmos and GeoGebra: Mathematics platforms offering interactive tools for mathematical concepts and explorations.
- Schoology (Learning Management System): For managing assignments, discussions, and collaborative work.

Books and Publications:

- "STEAM Kids: 50+ Science / Technology / Engineering / Art / Math Hands-On Projects for Kids" by Anne Carey, et al.
- "STEAM Lab for Kids: 52 Creative Hands-On Projects for Exploring Science, Technology, Engineering, Art, and Math" by Liz Lee Heinecke.

- "The Art of Science: Activities and Creative Ideas for the Teaching of Science to Children" by George E. DeBoer.

Hands-on Materials and Kits:

- Engineering and Science Kits: LEGO Education kits, Snap Circuits, robotics kits, etc., promoting hands-on learning.
- Art Supplies: Various art materials such as paints, brushes, sculpting clay, etc., for creative expression in projects.

Videos and Documentaries:

- TED-Ed Talks: Engaging talks on various STEAM-related topics suitable for students.
- CrashCourse: Educational videos covering science, engineering, mathematics, and more.
- Documentaries: Such as "Bill Nye: Science Guy," "The Art Assignment," or "Dream Big: Engineering Our World."

Assessment Tools:

- Rubrics: Create rubrics to assess collaboration, research, creativity, and presentation skills.
- Peer Evaluation: Encourage students to evaluate each other's contributions to teamwork.
- Self-Assessment Reflections: Have students reflect on their learning process, what they've learned, and how they've contributed to the group.

Guest Speakers and Field Trips:

- Invite professionals or experts from various STEAM fields to speak to students about their careers and experiences.
- Arrange field trips to science centers, museums, art galleries, or engineering facilities to enhance understanding and inspiration.

Mystery Science: www.mysteryscience.com

Schoology

Google Suite

Career Readiness, Life Literacies, and Key Skills Practices

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- Attend to financial well-being.
- Consider the environmental, social, and economic impacts of decisions.
- Demonstrate creativity and innovation.
- Utilize critical thinking to make sense of problems and persevere in solving them.
- Model integrity, ethical leadership, and effective management.
- Plan education and career paths aligned to personal goals.
- Use technology to enhance productivity, increase collaboration and communicate effectively.
- Work productively in teams while using cultural/global competence.

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ELL

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- Opportunities for language practice in groups, language buddies

Gifted and Talented

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- Independent research
- Team leads
- Self-directed assessments

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- Utilize online learning platforms (i.e., Google Meet and Schoology) to meet with students virtually.
- Virtual demonstrations and discussions.
- Regular check-ins with groups.
- Incorporate interactive elements such as polls, breakout rooms, and discussions to maintain engagement.