

Subject Area: Enrichment/GT
Grade Levels: Elementary 3-4;
Middle School 5-7

Unit 2: Engineering Design and Climate Change

Adapted from Our Changing Climate Grades 3-6 Curriculum from Climate Generation and Feats and Flops by Jason S. McIntosh, Ph.D

Dates: September - June

Time Frame: 30 to 35 Weeks
1 session per week

Overview

Students will build their knowledge about climate change, learn the seven iterative steps of the engineering design process, engage in all seven steps to develop an innovative solution to a climate change problem of choice, create a prototype of their solution and a persuasive advertisement to communicate their innovative solution to an interested audience.

Enduring Understandings

- The Earth's climate is now changing faster than at any point in the history of modern civilization, primarily as a result of human activities.
- Global climate change has already resulted in a wide range of impacts across New Jersey, the United States and the World and across many sectors of the economy.
- The underpinnings of climate change span across physical, life, Earth and space sciences.
- Better understanding climate science will inform decisions that improve quality of life for individuals, their community, and the world.
- Engineering solutions can allow us to mitigate impacts, adapt practices, and build resilient systems.
- Innovation requires "blue sky thinking", creativity, curiosity, mistake making, a "growth mindset" and perseverance.
- The engineering design process consists of multiple, reiterative steps.
- Students can successfully design solutions to real world problems by following the engineering design process.

Skill and Knowledge Objectives

SWBAT:

- Demonstrate prior knowledge, areas of confusion and opinions around climate change
- Compare climate change knowledge and opinions to that of the American public
- Build background knowledge about climate change
- Identify the difference between climate change, global warming and the greenhouse effect
- Provide examples of the effects of climate change being seen today
- Identify personal actions that can be taken to slow climate change
- Identify local, national and global actions that can be taken to slow climate change
- Recognize how climate change is being communicated in different media sources

- Define innovation and creativity, learn their importance to the engineering design process and specific techniques to enhance innovation and creativity.
- Learn the importance of making mistakes and of a Growth Mindset to the engineering design process and innovation.
- Learn all steps of the engineering design process
- Engage in designing, testing, and modifying an engineered solution to mitigate the impact of climate change on the local, national or global community.
- Construct a model of a proposed solution to mitigate the negative effects of climate change
- Solve real-world problems particularly related to climate change
- Create persuasive advertising to communicate their design innovation
- Become innovators

Assessments

Pre-Assessment

- [Climate Change Pre Test](#)
- Engineering Design and Innovation Pre Test - Feats & Flops TG pgs. 82-84

Formative Assessment

- Think-Pair-Share partner and group discussions
- Climate change [Quiz Bowl PowerPoint Activity](#)
- Teacher observation of student discussions, 1:1 teacher conferences
- Graphic organizers [3 Column Graphic Organizer](#), 4 square graphic organizer, T charts
- Questioning that encourages depth and complexity
- Brainstorming [IDEO Brainstorming Process](#)
- Notefacts pages and other Notebook and Appendix pages

Self-Reflection/Self-Assessment

- Individual student conferences
- Note taking on Powerpoint handout slides
- Work logs

Summative Assessment

- Climate change innovative prototype, persuasive advertising and oral presentation
- Engineering Design and Innovation Post Test - Feats & Flops TG pgs. 82-84
- [Engineering Design Innovation Rubric](#)

Resources

SEL Resources:

- Aiming for Blazing Class Chart - See visual below
- [Aiming for Blazing Tracking Chart](#)
- Feelings Wheel - See visual below
- [Peaks & Pits Jamboard Blank](#)
- [Short Yoga for Kids Videos](#)
- Short meditation videos such as [5 Minute Meditation for Kids](#)
- [30 Days of Mindfulness in the Classroom from Calm.com](#) - see PDF
- Text - *The Name Jar* By Yangsook Choi
- [The Name Jar Lesson](#) Plan
- [Project Model](#)
- [Project Assignment](#)

Climate Change Resources:

- *Our Changing Climate* Grades 3-6 Curriculum from *Climate Generation* www.climategen.org
 - Curriculum Guide PDF - Download from website
 - [Our Changing Climate PreTest, Worksheets and Powerpoints](#)

Engineering Design Resources:

- *Feats and Flops* by Jason S. McIntosh, Ph.D Teacher Guide
- Feats and Flops student notebook page PDFs available at www.rfwp.com/bookfiles (code required)
- ¼" to ½" 3 ring Climate Change Innovation binders for notebook pages, design work logs
- Anchor chart paper, sticky notes,
- Graphic organizers [3 Column Graphic Organizer](#), 4 square graphic organizer, T chart
- Online & Media Resources:
 - [Climate Change Polling Data](#)
 - [Famous Failures](#) Video
 - [Creativity 101 app](#)
 - [SCAMPER 101 app](#)
 - [The Engineering Process Crash Course for Kids](#) Video
 - [Appendix I - Engineering Design in the NGSS](#)
- Brainstorming guidelines [IDEO Brainstorming Technique](#)
- *Brainstorm! The Stories of Twenty American Kid Inventors* by Tom Tucker
- Multiple and varied prototype materials
- Colored markers and pencils

Standards

NJSLS English Language Arts Anchor Standards

Reading

- NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
- NJSLSA.R2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
- NJSLSA.R4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
- NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- NJSLSA.R8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
- NJSLSA.R9. Analyze and reflect on how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.
- NJSLSA.R10. Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed.

Writing

- NJSLSA.W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
- NJSLSA.W4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

- NJSLSA.W5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
- NJSLSA.W6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
- NJSLSA.W7. Conduct short as well as more sustained research projects, utilizing an inquiry-based research process, based on focused questions, demonstrating understanding of the subject under investigation.
- NJSLSA.W8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
- NJSLSA.W9. Draw evidence from literary or informational texts to support analysis, reflection, and research.

Speaking and Listening

- NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
- NJSLSA.SL4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
- NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
- NJSLSA.SL6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

Language

- NJSLSA.L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- NJSLSA.L2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- NJSLSA.L3. Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
- NJSLSA.L4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.
- NJSLSA.L5. Demonstrate understanding of word relationships and nuances in word meanings.
- NJSLSA.L6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

NJSLS: Technology

- 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
- 8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.
- 8.1.5.A.3 Use a graphic organizer to organize information about a problem or issue.
- 8.1.8.A.1 Demonstrate knowledge of a real world problem using digital tools.
- 8.1.8.A.2 Create a document (e.g. newsletter, reports, personalized learning plan, business letters or flyers) using one or more digital applications to be critiqued by professionals for usability.

NJSLS: Science - Climate Change

GRADE 3

- 3-LS4: Biological Evolution: Unity and Diversity
 - • 3-LS4-4 Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.
- 3-ESS2: Earth's Systems
 - • 3-ESS2-1 Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
- 3-ESS3: Earth and Human Activity
 - • 3-ESS3-1 Make a claim about the merit of a design solution that reduces the impacts of climate change and/or a weather-related hazard

GRADE 4

- 4-ESS3: Earth and Human Activity
 - 4-ESS3-2 Generate and compare multiple solutions to reduce the impacts of natural Earth processes and climate change on humans.

GRADE 5

- 5-ESS3: Earth and Human Activity
 - • 5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources, environment, and address climate change issues.

GRADE 3 - 5

- 3-5-ETS1: Engineering Design
 - 3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
 - 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
 - 3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

GRADE 6 - 8

Disciplinary Core Ideas

- ESS3.D: Global Climate Change Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming). Reducing the level of climate change and reducing human vulnerability to whatever climate changes do occur depend on the understanding of climate science, engineering capabilities, and other kinds of knowledge, such as understanding of human behavior and on applying that knowledge wisely in decisions and activities.
- MS-ESS3-5. Ask questions to clarify evidence of the factors that have caused climate change over the past century.
- MS-ETS1: Engineering Design
 - 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.

CASEL (Collaborative for Academic, Social, and Emotional Learning) Core Competencies

- Self Awareness - Accurately recognize one's own feelings and thoughts and their influence on behaviors
- Self Management - Regulate one's emotions, cognitions and behaviors
- Social Awareness - Take the perspective of and empathize with others
- Relationship Skills - Establish and maintain healthy and rewarding relationships
- Responsible Decision Making - Make constructive choices

National Association for Gifted Children (NAGC) Pre-K - Grade 12 Gifted Programming Standards

- <https://www.nagc.org/resources-publications/resources/national-standards-gifted-and-talented-education/pre-k-grade-12>

Unit 2: Engineering Design and Climate Change Pacing Guide - SEL Activities

SEL Competencies - Self Management

Gen. Teaching Practice
YEAR LONG - Aiming for Blazing

Essential Questions: How can I monitor and regulate my emotions effectively, motivate myself, exercise self control and delay gratification.

Materials:

- Aiming for Blazing class chart with Check In, Bright, Brighter, Brightest and Blazing.- See SEL Resources
- Class Check In Clip
- [Aiming for Blazing Tracking Chart](#)

Activities: Reward class during each lesson for regulating behavior, following class procedures, demonstrating knowledge learned and working together etc. Reward class by moving class clip up chart. If class reaches Blazing during lesson, then they earn a class star. Once the class collects 10 stars, they earn a class prize.

SEL Competencies - Self Awareness and Social Awareness

Gen. Teaching Practice
MARKING PERIOD 1
Peaks & Pits

Essential Questions: How can I correctly label my own emotions, understand that they are temporary, that they affect my behavior and recognize how others might be feeling differently.

Materials:

- Feelings Wheel - See SEL resources
- Peaks/Pits Anchor Chart and Sticky Notes OR
- [Peaks & Pits Jamboard](#)

Activities: Introduce students to Feelings Wheel format. At the beginning of each class, students will silently reflect on how they are feeling, choose a feeling word from the Feelings Wheel & https://docs.google.com/presentation/d/1xrBZcPdYdI053OL7usHtkHOtr_bSvkEbjYU_uVrYi5k/edit#slide=id.p record it on either a sticky note or on the Jamboard. Allow one student to share feelings & reason during each class period.

SEL Competencies - Self Management

Gen. Teaching Practice
MARKING PERIOD 2 & 3
Yoga or Meditation

Essential Question: How can I monitor and regulate my emotions effectively and cope with stress and anxiety?

Materials:

5 minute yoga videos such as Free Kids Yoga & Meditations from ALO Gives
[Short Yoga for Kids Videos](#)
[5 Minute Meditation for Kids](#)

Activities: Start every class period with a short (approximately 5 minute) peaceful, relaxing self management activity such as yoga or meditation. Vary the activities by marking period so students become competent and confident in each type of self management activity.

SEL Competencies - Self Management

Gen. Teaching Practice
MARKING PERIOD 4
Mindfulness Activities

Essential Question: How can I monitor and regulate my emotions effectively and cope with stress and anxiety?

Materials:

[30 Days of Mindfulness in the Classroom from Calm.com](#)

Activities: Start every class period with a short (approximately 5 minute) peaceful, relaxing self management as a mindfulness Vary the activity from Calm.com. Vary activities by marking period so students become competent and confident in each type of self management activity.

SEL Competencies - Self Awareness & Social Awareness

DAY 1 - DAY 3

Essential Questions: How does sharing our name stories contribute to respecting our uniqueness and the diversity of others?

Materials:

Text - *The Name Jar*
By Yangsook Choi

[The Name Jar Lesson Project Model](#)
[Project Assignment](#)

Activities: Engage in pre-reading discussion about first day of school. Introduce text *The Name Jar*. Read aloud. Discuss text using questions in lesson plan. Complete post reading project where students will research, write about, illustrate and share the pronunciation, meaning and story of their names.

Unit 2: Engineering Design and Climate Change Pacing Guide

<p>Lesson 1: Pre Assessment Climate Change DAY 1 - DAY 2</p> <p>Essential Question: What do you already know about climate change?</p> <p>Materials:</p> <ul style="list-style-type: none"> • Our Changing Climate Grades 3-6 Curriculum Guide - Lesson 1 • Climate Change Pre Test • Climate Change Polling Data <p>Activities: Give students the short pretest to assess knowledge and opinions about climate change. If needed, read the questions out loud. Discuss how students felt about taking the pretest. Compile results, and on DAY 2 share results with the class and discuss. If time permits, share how their answers and opinions compare with climate change polling data from American public.</p>	<p>Lesson 2: What is Climate Change? DAY 1 - DAY 2</p> <p>Essential Question: What is Climate Change?</p> <p>Materials:</p> <ul style="list-style-type: none"> • Our Changing Climate Grades 3-6 Curriculum Guide - Lesson 2 • Lesson 2 Handouts • Lesson 2 Powerpoint with notes and script • Climate Change Quiz Bowl PowerPoint <p>Activities: On an anchor chart, generate a list of questions around climate change that students hope to answer. Distribute handout and present Powerpoint slide show. Encourage students to take notes on presentation handouts and write down additional questions. Revisit questions and answers. Split students into teams and play the Quiz Bowl game.</p>	<p>Lesson 3: Climate Change Action DAY 1</p> <p>Essential Question: What can be done about climate change personally, locally and nationally?</p> <p>Materials:</p> <ul style="list-style-type: none"> • Our Changing Climate Grades 3-6 Curriculum Guide - Lesson 3 • Lesson 3 Handouts • Lesson 3 Powerpoint with notes and script • 3 Column Graphic Organizer <p>Activities: Distribute & label 3 column graphic organizer. self/family, school/ community & state/country. Think-Pair-Share What actions are already being taken. Review Powerpoint slide show. Encourage students to take notes on presentation handouts and add actions to their graphic organizer not already listed.</p>	<p>Lesson 4: Climate Change Action Brainstorming DAY 1 - DAY 2</p> <p>Essential Question: What can you do about climate change personally, locally and nationally?</p> <p>Materials:</p> <ul style="list-style-type: none"> • Lesson 3 Handouts notes • IDEO Brainstorming Technique • Sticky notes • Chart paper <p>Activities: Conduct up to 6 brainstorming sessions for each solution area (energy conservation, renewable energy, carbon capture and storage, transportation, education and political engagement). Categorize ideas on chart paper. Post charts throughout room for future reference.</p>	<p>Lesson 5: Climate Change in the Media DAY 1</p> <p>Essential Question: How is climate change being communicated in the media?</p> <p>Materials:</p> <ul style="list-style-type: none"> • Our Changing Climate Grades 3-6 Curriculum Guide - Lesson 4 • Lesson 4 Handouts • Lesson 4 Powerpoint with notes and script <p>Activities: Ask students what they have learned about climate change outside the classroom and where? What different persuasion techniques have they encountered? Which are most & least effective? Why? Distribute handout and present Powerpoint slide show. Encourage students to take notes on presentation handouts. Recap persuasion strategies and invite students to find additional examples of each.</p>
<p>Lesson 6: Pre Assessment Engineering Design DAY 1</p> <p>Essential Question: What do you already know about innovation and the engineering design process?</p> <p>Materials:</p> <ul style="list-style-type: none"> • Feats & Flops Pretest Appendix B & C • Lesson One TG pg. 4 • Famous Failures Video • Index cards • Chart paper <p>Activities: Introduce objective - design a solution to a climate change problem. Administer pretest. Distribute Climate Change Innovation notebooks Think-Pair-Share to define a feat and a flop. Watch Famous Failures video. Record one feat & flop on index cards. Collect, sort and create class chart.</p>	<p>Lesson 7: Defining and Enhancing Innovation DAY 1</p> <p>Essential Question: What is innovation?</p> <p>Materials:</p> <ul style="list-style-type: none"> • Lesson Two TG pg. 6 • 4 square graphic organizer • Types of Thinking posters TG Appendix D or colored PDFs <p>Activities: Ask class what is innovation? Share. Divide class into partner groups. On a 4 square graphic organizer, create group formula for innovation. Introduce Feats & Flops Innovation Formula & predict based on variables & definitions. Introduce & define Types of Thinking - one at a time. Self-reflect on their own type of thinking. Define B variable in formula as Blue Sky Thinking.</p>	<p>Lesson 8: Defining and Enhancing Creativity DAY 1 - DAY 2</p> <p>Essential Question: What is creativity and how do I build it into the engineering design process?</p> <p>Materials:</p> <ul style="list-style-type: none"> • Lesson Three TG pg. 10 • Creativity 101 app • SCAMPER 101 app • SCAMPER TG Appendix E & F <p>Activities: Review and discuss all sections of Creativity 101 app and complete small group creativity activity. Use SCAMPER 101 app and posters to introduce students to the SCAMPER method of enhancing creativity and innovation. Select one idea from brainstorming Lesson 3 and use SCAMPER Appendix E to innovate.</p>	<p>Lesson 9: Importance of Making Mistakes to Engineering Design and Innovation DAY 1 - DAY 2</p> <p>Essential Question: What is the value of making mistakes?</p> <p>Materials:</p> <ul style="list-style-type: none"> • Lesson Five TG pg. 14 - 15 • Mistake to Masterpiece Cards Appendix G <p>Activities: Share mistake that turned into a success. Think Pair Share the same. Each student will then select a Mistake to Masterpiece card of their choice, research the mistake and share what they discovered. Discuss how mistakes and persistence pay off.</p>	<p>Lesson 10: Importance of Persistence to Engineering Design and Innovation DAY 1 - DAY 2</p> <p>Essential Question: What is a Growth Mindset?</p> <p>Materials:</p> <ul style="list-style-type: none"> • Lesson Six TG pg. 16 - 17 • Mindset Mix Up Cards Appendix I • Chart paper • Brainstorm! The Stories of Twenty American Kid Inventors by Tom Tucker • Hall of Fame Appendix J <p>Activities: Ask what students know about Fixed vs. Growth mindsets. Define according to Dweck. Create T chart, deal & sort Mindset Mix Up Cards on chart paper. Review Innovation formula again. Read the story of kid inventor Vanessa Hess. Individually complete Hall of Fame Appendix J.</p>

<p>Lesson 11: The Engineering Design Process DAY 1</p> <p>Essential Question: What are the steps of the Engineering Design Process?</p> <p>Materials:</p> <ul style="list-style-type: none"> Lesson Fourteen TG pg. 34 - 37 Appendix I - Engineering Design in the NGSS Engineering Design Steps - Appendix S The Engineering Process Crash Course for Kids Video <p>Activities: Ask if students are familiar with the Engineering Design Process. Share. Pass out step cards. Think Pair Share to place in an order or pattern. Watch the video. Pause while watching so students can re-order cards as needed. Glue steps in a circle to emphasize the iterative nature of engineering design, and place steps in front of notebooks for continued reference.</p>	<p>Lesson 12: Engineering Design Process Steps 1 & 2 - Define the Problem, Do Your Research DAY 1 - DAY 3</p> <p>Essential Question: What climate change problem do I want to help solve? What has already been done to help solve this problem?</p> <p>Materials:</p> <ul style="list-style-type: none"> My Makers Map Appendix P Climate change brainstorming anchor charts from Lesson 4 1 lined binder page for each question. <p>Activities: Considering everything they have learned about climate change, students will identify which problem(s) they are most curious about and/or care most about. Students will pick 1 or 2 problems to explicitly define. Students will record one problem on My Makers Map. Students will create a list of what is already known and questions they have. Students will conduct research to answer each question.</p>	<p>Lesson 13: Engineering Design Process Steps 3 & 4 - Develop a Possible Solution, Design Your Solution DAY 1 - DAY 3</p> <p>Essential Question: How can I help solve this problem? What are my limitations and restrictions?</p> <p>Materials:</p> <ul style="list-style-type: none"> Lesson Sixteen TG pg. 40 -41 SCAMPER TG Appendix E & F IDEO Brainstorming Technique Sticky notes Blueprint for Innovation Appendix T <p>Activities: Students will use the SCAMPER process and IDEA brainstorming technique to develop possible solutions for their problem. Once they have identified the best possible solution, they will complete the Blueprint for Innovation and build an action plan. Teacher will create a student conference schedule and meet with students 1:1 to provide guidance and to ensure students remain on track.</p>	<p>Lesson 14: Engineering Design Process Steps 5, 6 & 7 - Develop a Prototype, Test It and Improve It DAY 1 - DAY 3</p> <p>Essential Question: How do I construct my prototype? Does it work? What modifications do I need to make?</p> <p>Materials:</p> <ul style="list-style-type: none"> Lesson Nineteen TC pg. 47 My Makers Map Appendix P Completed Blueprint for Innovation Individual materials and tools identified on Blueprints Demonstration Feedback Form Appendix V Work Log master <p>Activities: Students will spend several weeks building, testing and improving their prototypes. Small groups of students will meet with each other to provide feedback using Demonstration Feedback Form. Teacher will continue to meet individually with students to provide guidance and to ensure students remain on track.</p>	<p>Lesson 15: Communicating about Climate Change and Developing Innovation Presentations DAY 1 - DAY 4</p> <p>Essential Question: How can I best communicate my innovation to an interested audience?</p> <p>Materials:</p> <ul style="list-style-type: none"> Completed innovation prototypes <i>Our Changing Climate</i> Grades 3-6 Curriculum Guide - Lesson 5 Colored pencils, markers, visuals Presentation notes Parent/audience invitation Engineering Design Innovation Rubric <p>Activities: Students will review the seven persuasive strategies learned in Lesson 5 and prepare an advertisement (print, visual or audio) using one of the persuasion strategies. They will practice their presentations with their classmates and get feedback. Students will also share their climate change innovations and advertisements with their parents.</p>
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Differentiate Instruction, depending on individual student need (Students with an IEP, 504, or Intervention Plan; ELL Students; At-Risk Students; Gifted Students) by:

Presentation Accommodations

- Listen to audio recordings instead of reading text
- Learn content from audio books, movies, videos and digital media instead of reading print versions
- Use alternate texts at lower or higher readability level
- Work with fewer items per page or line and/or materials in a larger print size
- Use magnification device, screen reader, or Braille / Nemeth Code
- Use audio amplification device (e.g., hearing aid(s), auditory trainer, sound-field system (which may require teacher use of microphone)
- Be given a written list of instructions
- Record a lesson, instead of taking notes
- Have another student share class notes with him
- Be given an outline of a lesson
- Be given a copy of teacher's lecture notes
- Be given a study guide to assist in preparing for assessments
- Use visual presentations of verbal material, such as word webs and visual organizers
- Use manipulatives to teach or demonstrate concepts

- Have curriculum materials translated into native language
- Display student-created anchor charts throughout unit for reference
- Pre-teach vocabulary and post around the room for reference

Response Accommodations

- Use sign language, a communication device, Braille, other technology, or native language other than English
- Dictate answers or notes to a scribe
- Capture responses or notes on an audio recorder or voice to text device
- Use a spelling dictionary or electronic spell-checker
- Use a word processor to type notes or give responses in class

Setting Accommodations

- Work or take a test in a different setting, such as a quiet room with few distractions
- Sit where she learns best (for example, near the teacher, away from distractions)
- Use special lighting or acoustics
- Take a test in small group setting
- Use sensory tools such as an exercise band that can be looped around a chair's legs (so fidgety kids can kick it and quietly get their energy out)
- Use noise buffers such as headphones, earphones, or earplugs
- Use soft background music as calming and focusing device

Timing Accommodations

- Take more time to complete a task or a test
- Have extra time to process oral information and directions
- Take frequent breaks, such as after completing a task

Scheduling Accommodations

- Take more time to complete a project
- Take a test in several timed sessions or over several days
- Take sections of a test in a different order
- Take a test at a specific time of day

Organization Skills Accommodations

- Use an alarm to help with time management
- Mark texts with a highlighter
- Use color coding to facilitate note organization
- Have help coordinating assignments in a book or planner
- Receive study skills instruction

Assignment Modifications

- Complete fewer or different homework problems than peers
- Write shorter papers or fewer notes
- Answer fewer or different test questions
- Create alternate projects or assignments

Curriculum Modifications

- Learn different material (such as continuing to work on multiplication while classmates move on to fractions, or moving ahead to an extension concept/skill while classmates continue to work on a core skill)
- Provide enrichment activities for advanced learners including more depth and complexity in questioning
- Get graded or assessed using a different standard than the one for classmates

Other Modifications

- Think-Pair-Share: Design partnerships so that more advanced students can guide struggling students
- Provide bookmarks/reminder cards for how to participate effectively in discussions ("Purposeful Talk," "Discussion Starters")
- Help students set individual goals that meet teacher expectations (classwork and project work differentiated according to goals/expectations)
- Conference with students in small groups and individually to review concepts, skills and goals attainment as often as needed