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

Unit 2: Engineering Design & Innovation

Adapted from *Feats and Flops* by Jason S. McIntosh, Ph.D

Dates: September - June	**Time Frame:** 1 Class Per 6 Day Cycle 28 Cycle Classes

Overview

Students will learn the seven iterative steps of the engineering design process, engage in all seven steps to develop an innovative solution to a personal, community or world problem of choice, create a prototype of their solution, develop a persuasive advertisement and communicate their innovative solution to an interested audience. Students will be encouraged to consider climate change as a problem to tackle.

Enduring Understandings

- Engineering solutions allow us to mitigate impacts, adapt practices, and build resilient systems.
- Innovation requires many traits such as blue sky thinking, creativity, curiosity, mistake making, a growth mindset and perseverance.
- The engineering design process begins by identifying a problem of great interest or concern.
- The engineering design process consists of multiple, reiterative steps.
- Students can successfully design solutions to real world problems such as climate change by following the engineering design process.
- Technology and digital media resources enhance the engineering design, organization and presentation process when used appropriately and effectively.
- Persuasion techniques used in advertising can help promote a new design or innovation.
- New innovations created through the engineering design process should be shared ethically and without plagiarism.
- The ability to engage in the engineering design process, accurately and effectively, plays a fundamental role in academic and workplace success.
- 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 which creates multiple opportunities for engineering design & innovation.

Skill and Knowledge Objectives

SWBAT:

- Through unit immersion activities, create a personal definition of innovation
- Learn the importance of innovation 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
- Brainstorm personal, community and worldwide problems requiring an innovative solution
- Engage in designing, testing, and modifying an engineered solution to mitigate the impact of a personal, community, or real-world problem such as climate change.
- Construct a model of a proposed solution to mitigate the negative effects of climate change
- Solve real-world problems such as those related to climate change
- Create persuasive advertising to communicate their design innovation
- Become innovators
- **Employ technology and digital media resources to:**
    - Select reliable sources of information
    - Conduct research by taking notes and avoiding plagiarism
    - Design, conduct & analyze independent research related to the problem selected
    - Create a persuasive advertisement promoting innovation
    - Share innovation with an authentic audience

Assessments

Pre-Assessment

- Engineering Design and Innovation Pre-Test - Feats & Flops TG pgs. 82-84

Formative Assessment

- Think-Pair-Share partner and group discussions
- Graphic organizers T Charts, 3 Column Graphic Organizer, 4 square graphic organizer
- Teacher observation of student discussions
- Brainstorming IDEO Brainstorming Process
- 1:1 teacher conferences
- Questioning that encourages depth and complexity
- Research notes
- Data analysis and interpretation

Self-Reflection/Self-Assessment

- Individual student conferences
- Note taking
- Work logs

Summative Assessment

- Engineering design innovation prototype, persuasive advertising, oral and slide presentations
- Engineering Design and Innovation Post Test - Feats & Flops TG pgs. 82-84
- Engineering Design Innovation Rubric

Resources

SEL Resources:

- Aiming for Blazing Class Chart
- Aiming for Blazing Tracking Chart
- Feelings Wheel - attached below
- Peaks & Pits Anchor Chart
- 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

Engineering Design Resources:

- Engineering Design & Innovation Slide Show- used every class
- *The Boy Who Harnessed the Wind by William Kamkwamba & Bryan Mealer*
- William Kamkwamba Ted Talks
    - 2007 - Age 19
    - 2009 - Age 21

  Optional Materials:
  - *The Boy Who Harnessed the Wind* - Young Readers Edition
  - Other inspiring innovation stories for kids
        - *Brainstorm! The Stories of Twenty American Kid Inventors* by Tom Tucker
        - Related stories from GoodReads

- *Feats and Flops* by Jason S. McIntosh, Ph.D Teacher Guide
- ¼" to ½" 3 ring Engineering Design & Innovation binders for design work logs
- Blank binder pages for note taking
- Anchor chart paper
- Sticky note pads
- General Graphic organizers 3 Column Graphic Organizer, 4 square graphic organizer, T chart
- Online & Media Resources:
    - William Kamkwamba Ted Talks
        - 2007 - Age 19
        - 2009 - Age 21
    - Neflix Movie about William Kamkwamba
        - Official Trailer
    - Famous Failures Video
    - The Engineering Process Crash Course for Kids Video
    - SCAMPER 101 app
    - What Aristotle and Joshua Bell Can Teach Us About Persuasion - Ted Talk
    - Advertising samples using Logos, Ethos & Pathos
    - Dawn Dish Soap ad

- Engineering Design Steps
- Brainstorming guidelines IDEO Brainstorming Technique
- Lesson-specific graphic organizers are linked below
- *Brainstorm! The Stories of Twenty American Kid Inventors* by Tom Tucker
- Multiple and varied prototype materials
- Colored markers and pencils
- Innovation Rubric
- Presentation Sample
- Blank Presentation for formatting

Standards

New Jersey Student Learning Standards for English Language Arts - 2023

Language Domain Anchor Standards

(SS) System and Structure of Language: By the end of grade 12, demonstrate command of grammar and usage, capitalization, punctuation, and spelling.

(KL) Knowledge of Language: By the end of grade 12, apply knowledge of language and command of vocabulary 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.

(VL) Vocabulary Acquisition, Use, and Literal Meaning: By the end of grade 12, determine the meaning of unknown and multiple-meaning words using analysis of word parts (morphemes), word-solving strategies, and consulting general and specialized reference materials, as appropriate.

(VI) Vocabulary Acquisition, Use and Interpretative Meaning: By the end of grade 12, interpret figurative and connotative word meanings, including shades of meaning based on word relationships and context..

Reading Domain Anchor Standards

(CR) Close Reading of Text: By the end of grade 12, 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.

(CI) Central Ideas and Themes of Texts: By the end of grade 12, determine the central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

(IT) Interactions Among Text Elements: By the end of grade 12, analyze how and why individuals, events, and ideas develop and interact throughout a text.

(TS) Text Structure: By the end of grade 12, analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.

(PP) Perspective and Purpose in Texts: By the end of grade 12, assess how perspective or purpose shapes the content and style of a text.

(MF) Diverse Media and Formats: By the end of grade 12, synthesize content presented in diverse media and formats, including visually and quantitatively, as well as in words.

(AA) Analysis of an Argument: By the end of grade 12, evaluate the argument and specific claims in a text, including the validity of the reasoning, the credibility and accuracy of each source as well as the relevance and sufficiency of the evidence.

(CT) Comparison of Texts: By the end of grade 12, analyze and reflect on how two or more texts address similar themes or topics to build knowledge or to compare the approaches the authors take.

Writing Domain Anchor Standards

(IW) Informative and Explanatory Writing: By the end of grade 12, write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection,

organization, and analysis of content.

(WP) Writing Process: By the end of grade 12, develop and strengthen writing as needed by planning, revising, editing, rewriting, and publishing.

(WR) Writing Research: By the end of grade 12, conduct short as well as more sustained research projects, utilizing an inquiry-based research process, based on focused questions, demonstrating an understanding of the subject under investigation.

(SE) Sources of Evidence: By the end of grade 12, gather relevant information and evidence from multiple sources to support analysis, reflection, and research, while assessing the credibility and accuracy of each source, and integrating the information while avoiding plagiarism.

(RW) Range of Writing: By the end of grade 12, write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Speaking & Listening Domain Anchor Standards

(II) Integrate Information: By the end of grade 12, integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

(PI) Present Information: By the end of grade 12, 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.

(UM) Use Media: By the end of grade 12, make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

(AS) Adapt Speech: By the end of grade 12, adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

<u>New Jersey Student Learning Standards for Computer Science & Design Thinking - 2020</u>

Data & Analysis (DA)

- 8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.
  8.1.5.DA.2: Organize and present collected data visually to communicate insights gained from different views of the data.
- 8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim. (optional)
- 8.1.5.DA.5: Propose cause and effect relationships, predict outcomes, or communicate ideas using data.

Engineering Design (ED)

- 8.2.2.ED.1: Communicate the function of a product or device.
- 8.2.2.ED.2: Collaborate to solve a simple problem, or to illustrate how to build a product using the design process.
- 8.2.2.ED.3: Select and use appropriate tools and materials to build a product using the design

process.
- 8.2.2.ED.4: Identify constraints and their role in the engineering design process.

Interaction of Technology and Humans (ITH)
- 8.2.2.ITH.1: Identify products that are designed to meet human wants or needs.
- 8.2.2.ITH.2: Explain the purpose of a product and its value.
- 8.2.2.ITH.3: Identify how technology impacts or improves life.
- 8.2.2.ITH.4: Identify how various tools reduce work and improve daily tasks.
- 8.2.2.ITH.5: Design a solution to a problem affecting the community in a collaborative team and explain the intended impact of the solution.

New Jersey Student Learning Standards for Career Readiness, Life Literacies & Key Skills - 2020

Creativity and Innovation
- 9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3,7.1.NM.IPERS.6).
- 9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).
- 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).

Digital Citizenship
- 9.4.5.DC.3: Distinguish between digital images that can be reused freely and those that have copyright restrictions.
- 9.4.5.DC.4: Model safe, legal, and ethical behavior when using online or offline technology (e.g., 8.1.5.NI.2).

Information & Media Literacy
- 9.4.5.IML.2: Create a visual representation to organize information about a problem or issue (e.g., 4.MD.B.4, 8.1.5.DA.3).
- 9.4.5.IML.3: Represent the same data in multiple visual formats to tell a story about the data.
- 9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions (e.g., RI.5.7, 6.1.5.HistoryCC.7, 7.1.NM. IPRET.5).

Technology Literacy
- 9.4.5.TL.2: Sort and filter data in a spreadsheet to analyze findings.
- 9.4.5.TL.3: Format a document using a word processing application to enhance text, change page formatting, and include appropriate images, graphics, or symbols.
- 9.4.5.TL.5: Collaborate digitally to produce an artifact (e.g., 1.2.5CR1d).

New Jersey Social and Emotional Learning Competencies and Sub-Competencies
- Self Awareness -
  - Recognize one's feelings and thoughts
  - Recognize one's personal traits, strengths, and limitations.

- Self Management
  - Understand and practice strategies for managing one's own emotions, thoughts and behaviors
  - Recognize the skills needed to establish and achieve personal and educational goals

- Social Awareness
  - Recognize and identify the thoughts, feelings, and perspectives of others
- Responsible Decision Making
  - Develop, implement, and model effective problem-solving and critical-thinking skills
- Relationship Skills
  - Establish and maintain healthy and rewarding relationships

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

Unit 2: Engineering Design and Innovation - Updated Summer 2024
Pacing Guide - SEL Activities

SEL Competencies - Self Management Gen. Teaching Practice 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 prize from prze box.	**SEL Competencies - Self Awareness and Social Awareness** Gen. Teaching Practice 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 • Sticky notes **Activities**: Introduce students to the Feelings Wheel. At the beginning of each class, students will silently reflect on how they are feeling, choose a feeling word from the Feelings Wheel & record it on either a sticky note or on the Jamboard. Allow Star student to share feelings & reason during each class period & engage others in response.	**SEL Competencies - Self Management** Gen. Teaching Practice Yoga or Meditation **Essential Questions:** 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 class period with a short (approximately 5 minute) peaceful, relaxing self management activity such as yoga or meditation. Vary the activities so students become competent and confident in each type of self management activity.	**SEL Competencies - Self Management** Gen. Teaching Practice 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 activity such as a mindfulness exercise 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 2 **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 Innovation - Updated Summer 2024 Pacing Guide

Lesson 1: Engineering Design & Innovation Immersion Activities
DAY 1 - DAY 2
 	
Essential Questions:
What is Innovation? What drives innovation?
 	
Materials:
• Engineering Design & Innovation Slide Show- used every class
• *The Boy Who Harnessed the Wind by William Kamkwambe & Bryan Mealer*
• Sticky notes
• Anchor chart paper
 	
Activities: Read aloud *The Boy Who Harnessed the Wind.* Give each student sticky note pad. Read aloud again closely with focus on Setting Traits and William's Character Traits. During 2nd read, individually write setting and character traits on sticky notes. Create a class T chart by sharing and posting setting traits & character traits on anchor chart paper.
	Lesson 2: Engineering Design & Innovation Immersion Activities
	DAY 1
	
	Essential Questions:
	What is Innovation? What drives innovation?
	
	Materials:
	• William Kamkwamba Ted Talks
	  • 2007 - Age 19
	  • 2009 - Age 21
	Sticky notes
	Optional Materials
	• *The Boy Who Harnessed the Wind* - Young Readers Edition
	• Neflix Movie Official Trailer
	
	Activities: Pair students into partner groups. Watch both William Kamkwamba Ted Talks. After each, students will Think-Pair-Share additional learning about William's life setting and character traits. Add to Setting/Character Traits T chart previously created. Encourage students to expand their knowledge by reading Yound Readers Edition or watching Netflix movie.
		Lesson 3: Engineering Design & Innovation Immersion Activities
		DAY 1 - DAY 2
		
		Essential Question: How would you define innovation?
		
		Materials:
		• Previously created T chart with Setting/Character Traits
		• Poster paper
		• Colored pencils & markers
		
		Activities: Work with a partner and create a formula (middle school) or recipe (elementary school) for innovation. Consider all Williams character traits, and identify the 6 most important to innovation success. On poster paper, write the formula/recipe, define the variables/ingredients and write a paragraph explaining the formula or the recipe directions. Share and post formulas and recipes throughout the room for future reference.
			Lesson 4: Pre Assessment Engineering Design Steps
			DAY 1
			
			Essential Question: What do you already know about the engineering design process?
			
			Materials:
			• Feats & Flops Pretest Appendix B & C pgs. 82-84
			• Famous Failures Video
			• Index cards
			• Chart paper
			
			Activities: Introduce unit objective - Design a solution to personal, community or world problem. Administer pretest. Distribute Engineering Design & Innovation binders. Think-Pair-Share to define a feat and a flop. Watch Famous Failures video. Record one feet & flop on index cards. Collect, sort and create class chart
				Lesson 5: The Engineering Design Process
				DAY 1
				
				Essential Question: What are the steps of the Engineering Design Process?
				
				Materials:
				• The Engineering Process Crash Course for Kids Video
				• Engineering Design Steps graphic organizer
				
				Activities: Ask students to consider William Kamkwamba and identify the steps he took for windmill design. Watch the video. Identify missed steps. Pass out Engineering Design graphic organizer. Cut, and order step cards. Glue steps in a circle to emphasize the iterative nature of engineering design, and place steps in front of binders for on-going reference.

Lesson 6: Importance of Making Mistakes and Failing Forward DAY 1 **Essential Question:** What is the value of making mistakes? **Materials:** • Famous Failures Video • Mistake to Masterpiece Cards Appendix G **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.	**Lesson 7:** The Engineering Design Process Step 1 - Define the Problem, DAY 1 **Essential Question:** What personal, community or world problem do you want to help solve? Include problems related to climate change. **Materials:** • Problem brainstorming graphic organizer **Activities:** As a class, model format of graphic organizer & how to complete. Individually brainstorm problems of personal interest at all levels on graphic organizer and complete organizer.	**Lesson 8:** Step 1 - Define the Problem Cont. DAY 1 **Essential Question:** How do I narrow my list and pick the "just right" problem for me? **Materials:** • Problem brainstorming graphic organizer • Problem Definition **Activities:** Students will consider passions, interests, size, scope, and limitations regarding time & materials to prioritize problems. Students will select one problem. Students will clearly & concisely define that problem using the Problem Defintion graphic organizer	**Lesson 9:** Step 2 - Do Your Research DAY 1 - 3 **Essential Question:**What more do I need to know before I can develop a possible solution? **Materials:** • Research Question & Answer Template • Google Forms **Activities:** Students will list questions they need to answer before developing a solution. What is currently being used/done to solve the problem? Students will conduct research to answer the questions. Middle school students may create, conduct & analyze their own study.	**Lesson 10:** Step 3 Develop a Possible Solution DAY 1 - DAY 2 **Essential Question:** How can I help solve this problem? What are my limitations and restrictions? **Materials:** • SCAMPER Strategy Appendix E & F • IDEO Brainstorming Technique **Activities:** Students will; first learn all steps of the SCAMPER creativity technique using a class example. Students will then use the SCAMPER process with Appendix E to brainstorm possible solutions for their problem.

Lesson 11: Steps 4 Design Your Solution DAY 2 **Essential Question**: What steps do I need to take and what materials do I need to design my solution? **Materials**: • SCAMPER Strategy Appendix E • Solution Planning Sheet **Activities:** Students will select their favored solution based on SCAMPER. Students will then carefully consider the steps they need to take and the materials they need to collect to build a prototype of their solution. Students will create a visual design or protype of their solution. They may use a graphic design platform.	**Lesson 12:** Steps 5, 6 & 7 Build a Prototype, Test It and Improve It DAY 1 - DAY 4 **Essential Question**: How do I construct my prototype? Does it work? What modifications do I need to make? **Materials**: • Solution Planning Sheet • Individual materials and tools as needed • Work Log master **Activities:** Students will spend several weeks building, testing and improving their prototypes. Students will keep a log in their binder of their progress. Teacher will meet individually with students to provide guidance and to ensure students remain on track to complete prototype. Prototype work will need to be completed at home.	**Lesson 13:** Create Advertising to Promote Innovation (Middle School) DAY 1 **Essential Question:** What are the most effective persuasion techniques? **Materials:** • What Aristotle and Joshua Bell can teach us about persuasion - Ted Ed • Advertising samples using Logos, Ethos & Pathos **Activities:** Students will watch the video and take notes in their binder to learn the 3 ancient techniques of persuasion. Students will watch another video with advertising samples of each type and identify which technique they recognize in each ad. Advertising work may need to be completed at home.	**Lesson 14:** Create Advertising to Promote Innovation (Middle School) DAY 1 **Essential Question:** How do I persuade an audience to be interested in my innovation? **Materials:** Dawn Dish Soap ad Student advertising samples: • Guitar Glove • Earmuphones • Sustainable NJ Car Exhaust • Identify 3 ways to advertise your innovation rubric . **Activities:** Students will watch the Dawn dish soap ad and review the 3 persuasion techniques. They will watch the 3 student sample ads, and with a partner, identify the persuasion technique(s) used. Finally students will use the graphic organizer to brainstorm ways to use each persuasion technique for their innovation. Students will create an adverisedment of choice for their innovation to include in final presentations. Advertising work may need to be completed at home.	**Lesson 15:** Create Engineering Design & Innovation Presentation DAY 1 - DAY 3 **Essential Question**: How can I best communicate my innovation to an interested audience? **Materials**: • Completed innovation prototype • Innovation Rubric • Student sample • Blank Presentation for formatting Presentation & notes • Parent/audience invitation **Activities:** Students will prepare presentations & notes to showcase their innovations. They will practice their presentations for classmates. Students will present their innovations to an interested audience of parents and administrators.

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