Elementary GATE - Grade 5

Unit Title: Fifth Grade Unit One (Novel Study: *The Boy Who Harnessed the Wind*)

Stage 1: Desired Results

Standards & Indicators:

National Standards in Gifted and Talented Education

- **1.1** - Self-Understanding. Students with gifts and talents recognize their interests, strengths, and needs in cognitive, creative, social, emotional, and psychological areas.
- **2.1** - Identification. All students in Pre-K through grade 12 with gifts and talents have equal access to the identification process and proportionally represent each campus.
- **2.5** - Learning Progress. Students self assess their learning progress.
- **3.2** - Talent Development. Students with gifts and talents demonstrate growth in social and emotional and psychosocial skills necessary for achievement in their domain(s) of talent and/or areas of interest.
- **3.3** - Responsiveness to Diversity. Students with gifts and talents develop knowledge and skills for living in and contributing to a diverse and global society.
- **3.4** - Instructional Strategies. Students with gifts and talents demonstrate their potential or level of achievement in their domain(s) of talent and/or areas of interest.
- **3.5** - Instructional Strategies. Students with gifts and talents become independent investigators
- **4.1** - Personal Competence. Students with gifts and talents demonstrate growth in personal competence and dispositions for exceptional academic and creative productivity. These include self-awareness, self-advocacy, self-efficacy, confi - dence, motivation, resilience, independence, curiosity, and risk taking.
- **4.2** - Social Competence. Students with gifts and talents develop social competence manifested in positive peer relationships and social interactions.6.1. Talent Development. Students identify and fully develop their talents and gifts as a result of interacting with educators who possess content pedagogical knowledge and meet national teacher preparation standards in gifted education and the Standards for Professional Learning.

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes. **9.2.5.CAP.4:** Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements. **9.4.5.CI.4**: Research the development process of a product and identify the role of failure as a part of the creative process.	Students will verbally communicate project designs using reasoning and prior knowledge. Students will complete assigned tasks using original ideas and designs. Students will offer and accept constructive criticism. Students will respectfully compare different cultures to their own.	Design communication Implementing original ideas into design plans Accept others ideas and suggestions

Central Idea/Enduring Understanding:

- Human inventiveness in engineering practices and its power to overcome crippling adversity

Essential/Guiding Question:

- How does WIlliam's character develop in the novel and how does his character help him find success?

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Content:	**Skills (Objectives):**
• Novel study - *The Boy Who Harnessed the Wind*	• Read and discuss part one of *The Boy Who Captured the Wind.* • Design and build a survival tool • Invent a toy the balances on one finger • Complete the Profit Project

Interdisciplinary Connections:

NJSLS - Science

- 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.
- 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.

NJSLS - Math

- MP.2 Reason abstractly and quantitatively.
- MP.4 Model with mathematics.
- MP.5 Use appropriate tools strategically.
- 5.NF.B.7.C Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions.

NJSLS - Language Arts

- RL.6.1 Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- RL.6.2 Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
- RL.6.3 Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.
- RL.6.4 Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone
- RL.6.5 Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.
- RL.6.6 Explain how an author develops the point of view of the narrator or speaker in a text.

Stage 2: Assessment Evidence

Performance Task(s):	**Other Evidence:**
• Read and discuss first half of the novel - *The Boy Who Harnessed the Wind* • Students use the engineering design process to create a hunting tool and a balancing toy. • Students create a profit accounting sheet and make corn cakes to sell at market.	• Completed map of Malawi and History or Windmills activity. • Students verbally demonstrate knowledge of reading through class discussions and Socratic Seminars. • Students complete a Profit Project.

Stage 3: Learning Plan

Learning Opportunities/Strategies:	**Resources:**
Lesson 1 • Engage students with the Novel; *The Boy Who Harnessed the Wind.* Students identify and	**Lesson 1** • Book - *The Boy Who Harnessed the Wind* • Map of Africa

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describe where Malawi is using a map of Africa. Students then study the history of windmills.	● Video - History of Windmills
Lesson 2 ● Read pages #4-20 of Chapter One as a class and discuss using Student Storyboards as a guide for discussion.	**Lesson 2** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard
Lesson 3 ● Read pages #21-35 of Chapter One as a class and discuss using Student Storyboards as a guide for discussion. Create paper windmills.	**Lesson 3** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard ● Various materials for making paper windmills
Lesson 4 ● Read Chapter Two as a class and discuss using Student Storyboards as a guide for discussion. Design and build balancing toy	**Lesson 4** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard ● Various materials for making balancing toys
Lesson 5 ● Read Chapter Three as a class and discuss using Student Storyboards as a guide for discussion.	**Lesson 5** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard
Lesson 6 ● Engineering challenge - Design and build a hunting/survival tool.	**Lesson 6** ● Engineering Design Process Journal ● Various materials for creating one of several types of hunting/survival tools.
Lesson 7 ● Read Chapter four as a class and discuss using Student Storyboards as a guide for discussion. Research and create a poster on drought awareness.	**Lesson 7** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard ● Internet Access ● Research and poster student guide.
Lesson 8 ● Read Chapter five as a class and discuss using Student Storyboards as a guide for discussion. Begin Profit project, students develop their store, calculate costs of making corn cakes, and set a price for market.	**Lesson 8** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard ● Profit project student work pages
Lesson 9 ● Market Day! Students take their cakes to market to sell before calculating total profits. Group discussion on success and failures.	**Lesson 9** ● Book - *The Boy Who Harnessed the Wind* ● Profit project student work pages
Lesson 10 ● Read Chapter six as a class and discuss using Student Storyboards as a guide for discussion. Introduce idioms and select at least one for the chapter to discuss.	**Lesson 10** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard ● Idiom work page

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Lesson 11 ● Read Chapter seven as a class and discuss using Student Storyboards as a guide for discussion. Complete graphic organizer flow chart for famine to connect events of violence, starvation and disease. **Lesson 12** ● Read Chapter eight as a class and discuss using Student Storyboards as a guide for discussion. Complete sequencing events.	**Lesson 11** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard ● Graphic organizer - Famine **Lesson 12** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard ● Sequencing events student page

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

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Students will be provided with more challenging work based on their individual needs.	Students will be provided with more challenging work based on their individual needs.	Student and teacher will make plan to improve in certain areas as needed	Students will be allotted extra time as needed to finish projects Students will have the opportunity to work solo if needed.

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Career Readiness, Life Literacies and Key Skills		
Standard	**Performance Expectations**	**Core Ideas**
9.4.2.CI.1 - Demonstrate openness to new ideas and perspectives. **9.4.2.CI.2** - Demonstrate originality and inventiveness in work. **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. **9.4.5.CI.4**: Research the development process of a product and identify the role of failure as a part of the creative process. **9.4.5.CT.1:** Identify and gather relevant data that will aid in the problem-solving process. **9.4.5.CT.2**: Identify a problem and list the types of individuals and resources **9.4.5.CT.3:** Describe how digital tools and technology may be used to solve problems. **9.4.5.CT.4:** Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.	Students will explore a variety of technologies that solve problems in our everyday lives. Students will brainstorm ways to improve an invention that they use everyday. Students will offer and accept constructive criticism.	Defining and delimiting engineering practices Developing possible solutions Influence of engineering, technology, and science on society and the natural world.

Central Idea/Enduring Understanding: ● Williams' perseverance contributed to his educational and engineering goals to help his people.	**Essential/Guiding Question:** ● How does WIlliam use the engineering design process to create a better life for his people?
Content: ● Novel study - *The Boy Who Harnessed the Wind*	**Skills (Objectives):** ● Students verbally demonstrate knowledge of reading through class discussions and Socratic Seminars. ● Students build and test a windmill.

Interdisciplinary Connections:

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CCSS Language Arts

- SL.K.5 Add drawings or other visual displays to descriptions as desired to provide additional detail.
- W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.
- W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).) •
- W.2.8 Recall information from experiences or gather information from provided sources to answer a question.
- RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
- RI.2.8 Describe how reasons support specific points the author makes in a text.

Stage 2: Assessment Evidence

Performance Task(s):

- Read second half of the *Boy Who Harnessed the Wind*
- list and discuss famous inventors and their inventions
- Complete crop project
- Build and test a windmill out of materials provided.
- Design and build alternative blades of the windmill to test and compare with the original set.

Other Evidence:

- Students verbally demonstrate knowledge of reading through class discussions and Socratic Seminars.
- Students complete and discuss the crop project
- Students successfully build and test their windmills.
- Students design and build an original set of blades for their windmill to test.

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Lesson 1

- Read Chapter 9 as a class and discuss William's growth mindset and where he gets his confidence from. Complete student page on mindset.

Lesson 2

- Read and discuss Chapter 10 together as a class and compare and contrast how Williman's school and the scrapyard that he begins to think of as his school.

Resources:

Lesson 1

- Book - *The Boy Who Harnessed the Wind*
- Student Storyboard
- Growth mindset student page

Lesson 2

- Book - *The Boy Who Harnessed the Wind*
- Student Storyboard
- Compare and contrast student page

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Lesson 3 ● Students make a list of famous inventors and inventions that they know of and discuss what personality traits have made them successful. Read chapter 11 together.	**Lesson 3** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard ● Harvest time Google Form
Lesson 4 ● Discuss the types of crops that would successfully grow in the area that we live in and what we could make and sell with them. Read Chapter 12 and discuss.	**Lesson 4** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard ● Different Crops student work pages
Lesson 5 ● Read and discuss Chapter 14 together and analyze how the people of William's village thought about him before and after he made a successful windmill. Arrange the events of the chapter in order.	**Lesson 5** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard ● Sequence of events student page
Lesson 6 ● Student begin to plan ideas for their own windmills that can successfully spin and pick up weight.Check to make sure the kits are complete	**Lesson 6** ● Windmill kits
Lesson 7 ● Student will build windmills and improve as needed with the given directions	**Lesson 7** ● Windmill kits
Lesson 8 ● Evaluate and test windmills through a series of 3 labs. Complete the first test of making sure the windmill spins using a fan with the criteria and constraints put in place.	**Lesson 8** ● Windmills ● Fan ● Google Slides
Lesson 9 ● Complete the second test of making sure the windmill spins using a fan and lifting up a weighted bucket 8cm off of the base.	**Lesson 9** ● Windmills ● Fan ● Google Slides ● Weights
Lesson 10 ● Students complete the third challenge of creating their own blades out of recycled materials and test to compare if their blades spin faster than the given blades.	**Lesson 10** ● Windmills ● Fan ● Google Slides ● Recycled materials
Lesson 11 ● Wrap up the story by reading chapter 15 together and predict how the rest of the world will accept William's invention after he presents at a TED talk. Discuss how William is feeling after traveling for the first time.	**Lesson 11** ● Book - *The Boy Who Harnessed the Wind* ● Student Storyboard ● What are your dreams? Student page

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Lesson 12 ● Watch the last 18 minutes of the Netflix movie " The Boy Who Harnessed the Wind' and discuss how William's water pump was a huge improvement for his village. How does life change for them now? Watch a current TED talk to see where William is now.	**Lesson 12** ● Netflix Movie "The Boy Who Harnessed The Wind" ● 2017 TED talk

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Pacing Guide

Course Name	Resource	Standards
UNIT 1 Novel Study - *The Boy Who Harnessed the WInd* 24 days 2 day per the 6 day cycle 12 weeks	*The Boy Who Harnessed the Wind* Profit Project	**National Standards in Gifted and Talented Education** 2.1, 2.5, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2 **NJSLS - Science** 3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 5-ESS3-1
UNIT 2 Novel Study - *The Boy Who Harnessed the WInd* 24 Days 2 day per the 6 day cycle 12 weeks	*The Boy Who Harnessed the Wind* WIndmill kit	**National Standards in Gifted and Talented Education** 2.1, 2.5, 3.2, 3.3, 3.4, 3.5, 4.1, 4.2 **NJSLS - Science** 3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 5-ESS3-1