



NOVEL ENGINEERING

AAIM Conference 2017

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WHAT IS NOVEL ENGINEERING?

An integrated approach to teaching Engineering and Literacy

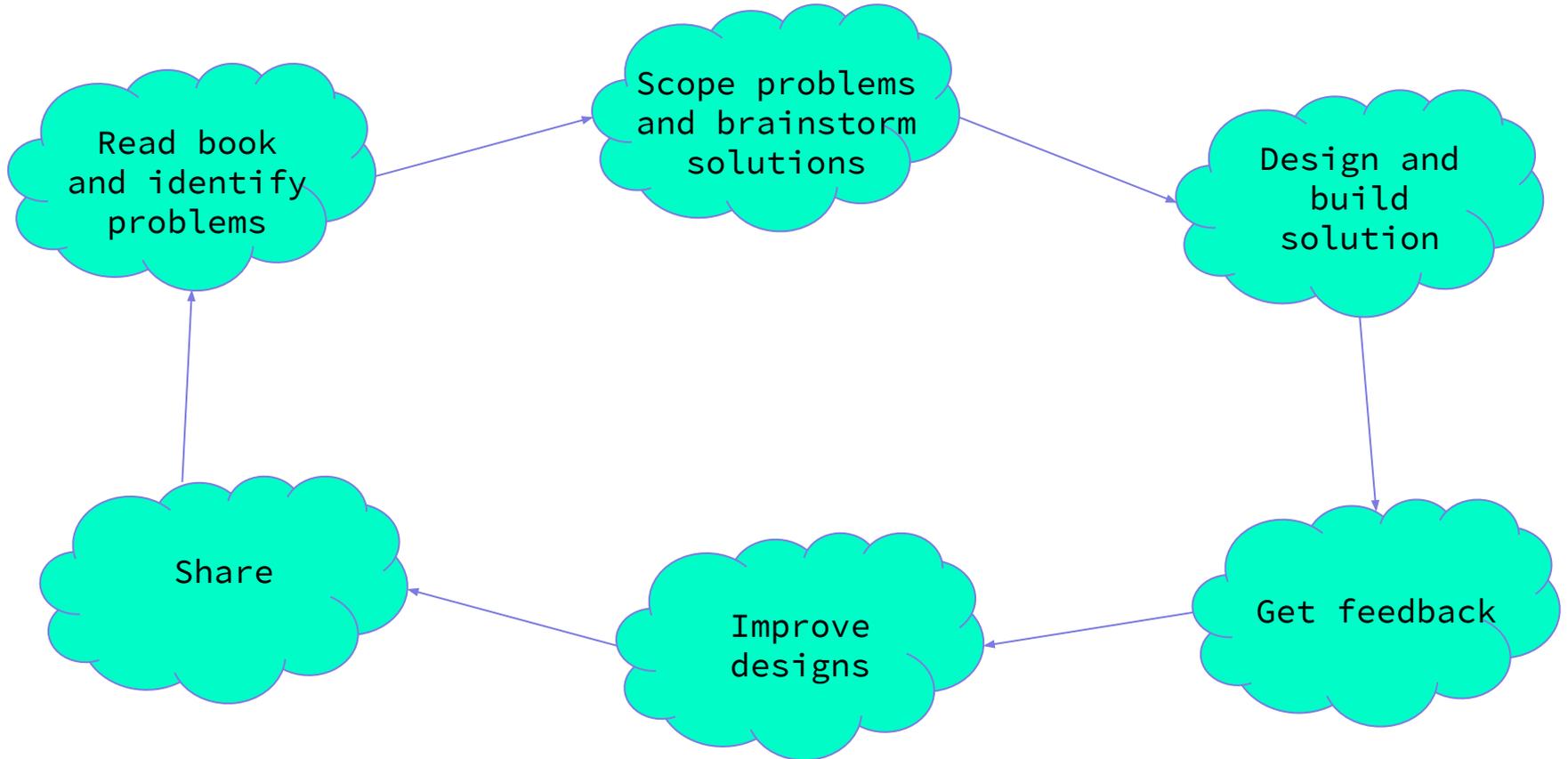
“Inspired by kids and grounded in research, Novel Engineering is an innovative approach to integrate engineering and literacy in elementary and middle school.”

“Students use existing classroom literature - stories, novels, and expository texts - as the basis for engineering design challenges that help them identify problems, design realistic solutions, and engage in the Engineering Design Process while reinforcing their literacy skills.”

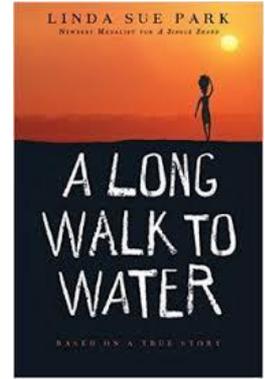


Novel Engineering

WHAT NOVEL ENGINEERING LOOKS LIKE



NOVEL ENGINEERING IN PRACTICE



6th Grade: *A Long Walk to Water* by Linda Sue Park

- **Task:** As a class, students read aloud portions of 11 year old Nya's struggle to walk many miles to and from the vanishing pond to provide water for her family. During her shoeless journey, Nya faces many challenges she must overcome.
- **Essential Questions:** What problems does Nya face during her daily trek to and from the pond? What characteristics does Nya possess?
- **Call to Action:** After brainstorming and identifying a solution for Nya, groups will create a detailed blueprint and begin building a prototype using recycled materials.

NOVEL ENGINEERING IN PRACTICE

7th Grade: *The Miracle Worker*



- **Task:** In Act I of *The Miracle Worker*, we see a young Helen Keller struggle with the inability to communicate with those around her. That struggle gives way to frustration which is part of the reason Helen lashes out at those around her. Your project team will analyze one of two scenes, identify and discuss Helen's problem and design a solution to assist Helen.
- **Essential Question:** What specific problems does Helen have with communication in your project team's assigned scene and what frustrations do you imagine she feels?
- **Call to Action:** After identifying a frustration Helen faces, students will design and build a prototype that provides a viable solution.

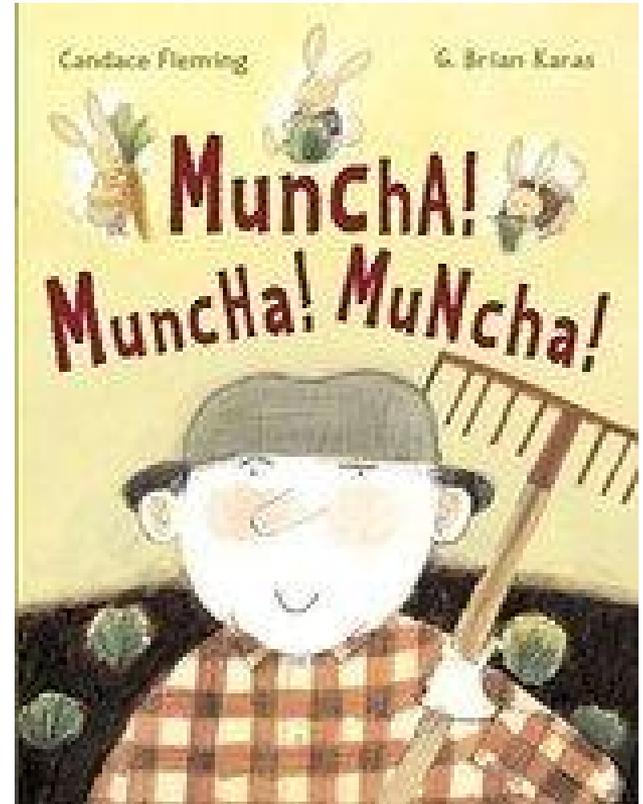


LET'S GET STARTED



Mr. McGreely makes a garden in his backyard but his vegetables keep getting eaten by three rabbits. He builds a wire fence which the bunnies hop over. Next he builds a wooden wall which the bunnies dig under. Then he digs a moat around the garden but they swim across. Finally he builds a huge concrete block fortress with security wire and lights, referred to as the "huge, enormous thing," around the entire garden. This keeps them out overnight, but when Mr. McGreely goes in the next morning with his basket to pick vegetables, the bunnies stow away in the basket, then jump out and start munching on the vegetables.

WHAT PROBLEMS DOES MR. MCGREELY ENCOUNTER?



RESOURCES

Novel Engineering

The Launch Cycle

Stanford d.school

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