



THE ENGINEERING DESIGN LOOP FOR K-2 STUDENTS

LEGOS, SOLO CUPS, AND POPSICLE STICKS OH MY!

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Roselle Park School District

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Who am I?

- Teaching for 18 years
- Have taught Technology, Gifted and Talented, and Creative Thinking
- I currently teach a 40 minute technology Class
- Push into the classroom, Using a cart to house all my materials



How did this unit begin?

- In September of 2018, i moved out of Teaching Tech to Gifted and Talented and Creative Thinking
- I assumed that the previous teacher would leave materials for me, and I was so very wrong!
- Needed something to teach for 30 minutes in K-2 Creative Thinking
- Through Google, I found the diagram of the Engineering Design Loop, and the rest is history!

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INTRODUCING WALTER

Walter is 2x2 Lego who does not have any arms or legs

Walter lives on top of a mountain surrounded by Lava

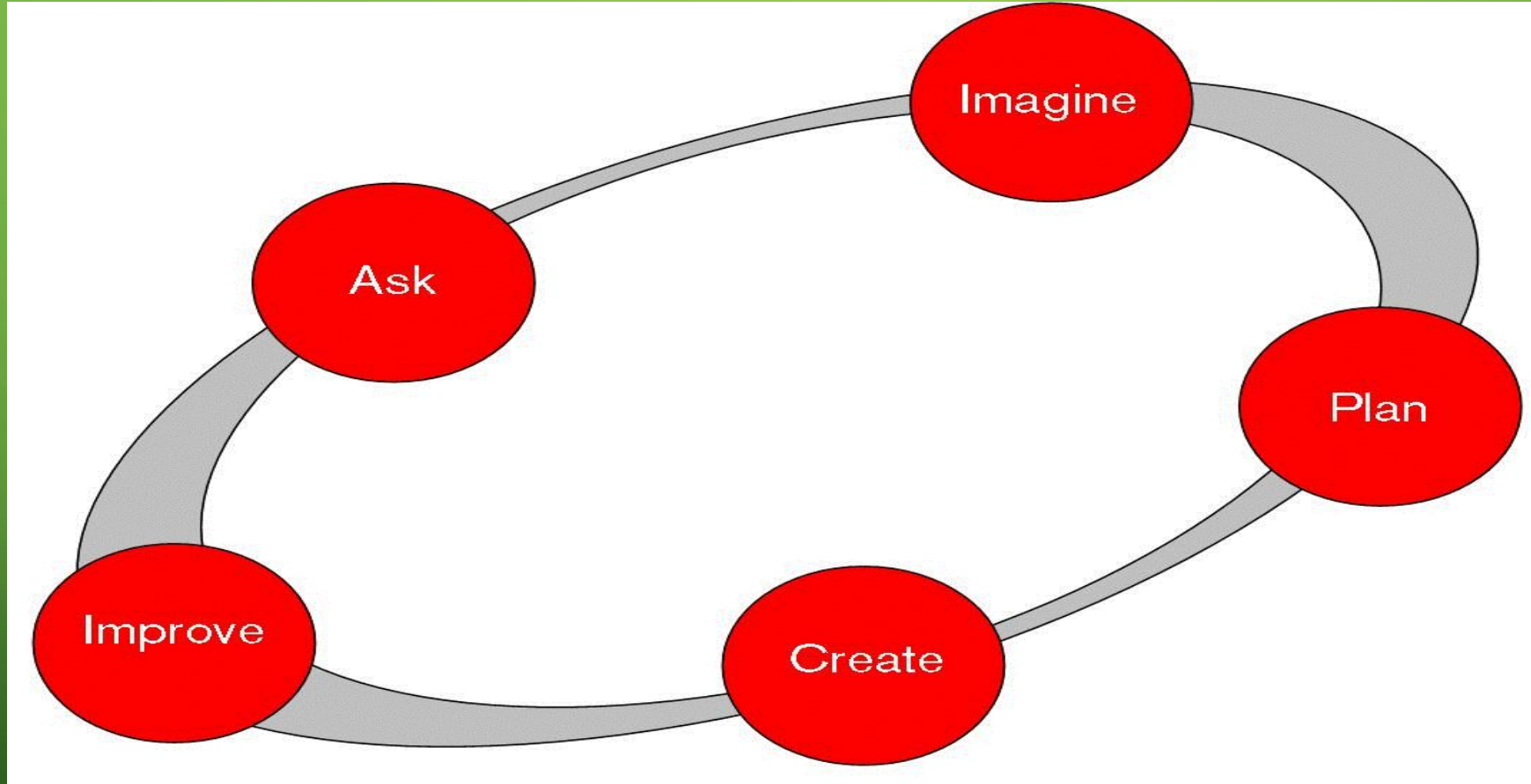
Walter's school is also on top of Lava

You have just landed on top of Walter's home, and he asks you for help moving him.

Walter can't be touched if you are not over the age of 18.

All you brought with you are unlimited popsicle sticks, but you don't have any glue, tape, or staples. (All called adhesives)

WHAT IS THE ENGINEERING DESIGN LOOP?



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ASK

- What are our constraints?

Name: Miss Beaver

Walter

Constraints = Rules

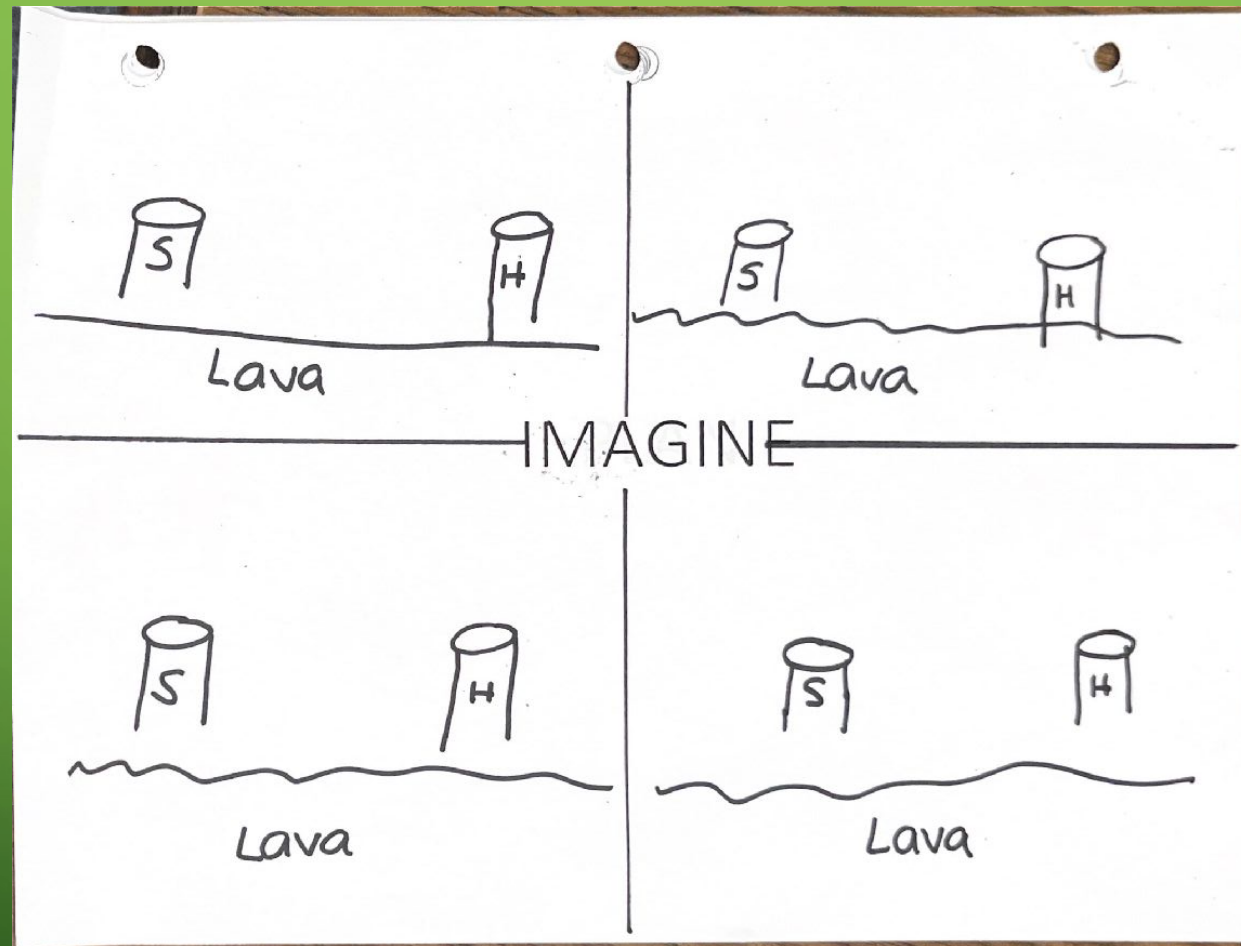
- ① You can't touch Walter unless you are 13 or older.
- ② All you have are popsicle sticks (adhesive)
- ③ You do not have tape, glue or staples

- What problem are we solving?

How can I move Walter from Home to School ~~and back~~
~~and back~~ and back three times?

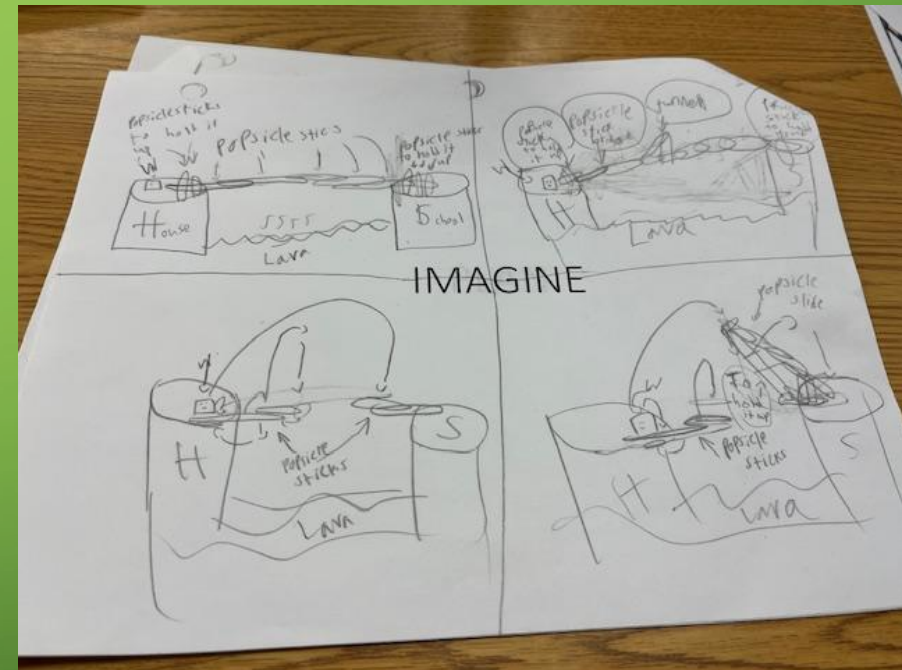
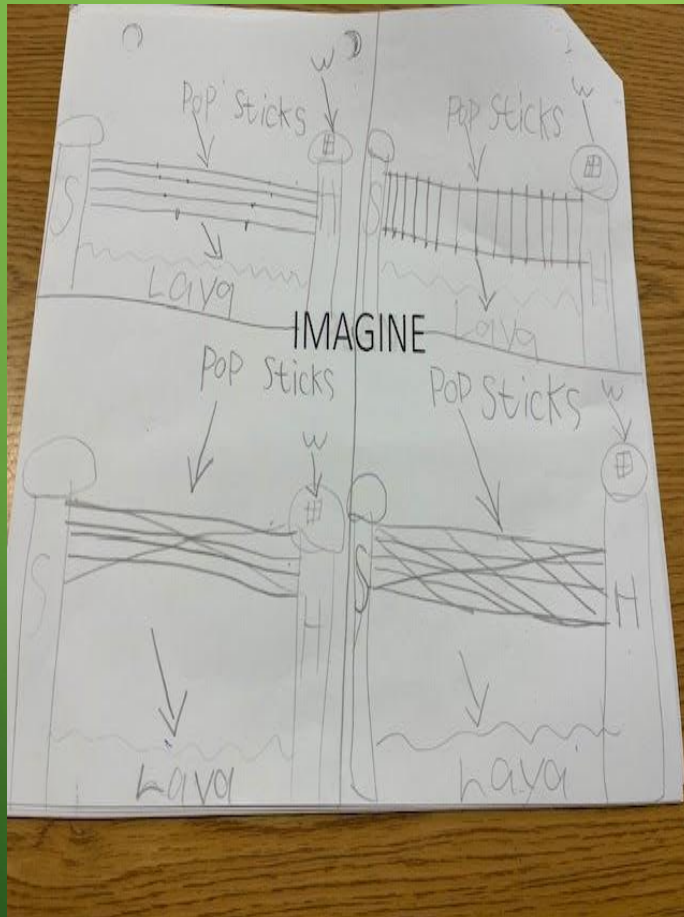
ASK

IMAGINE

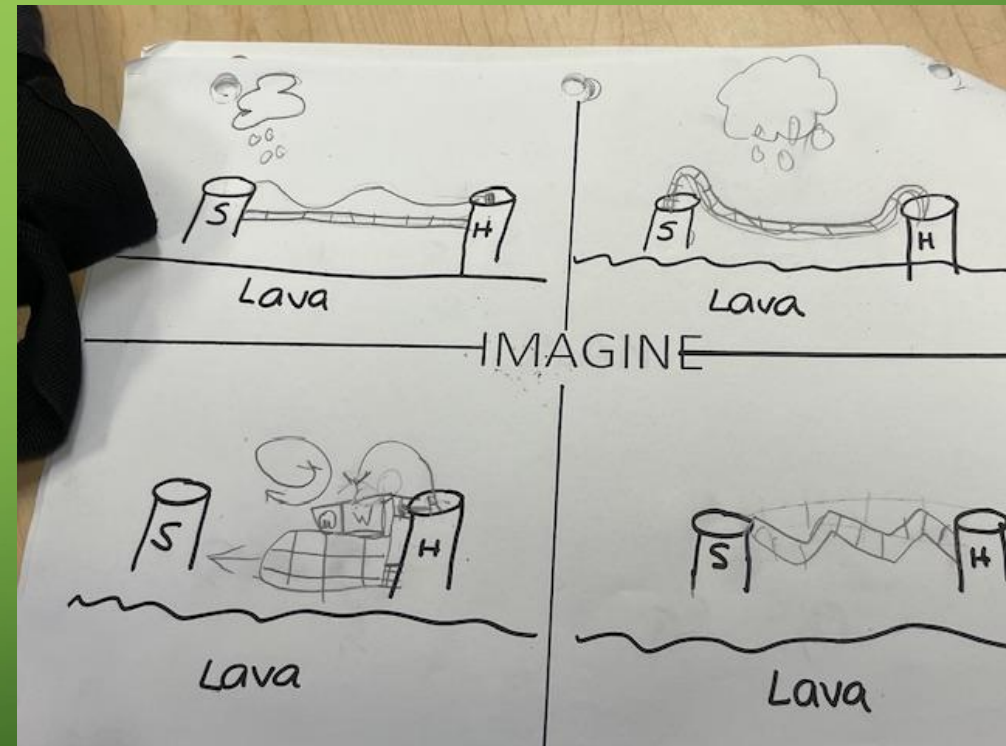
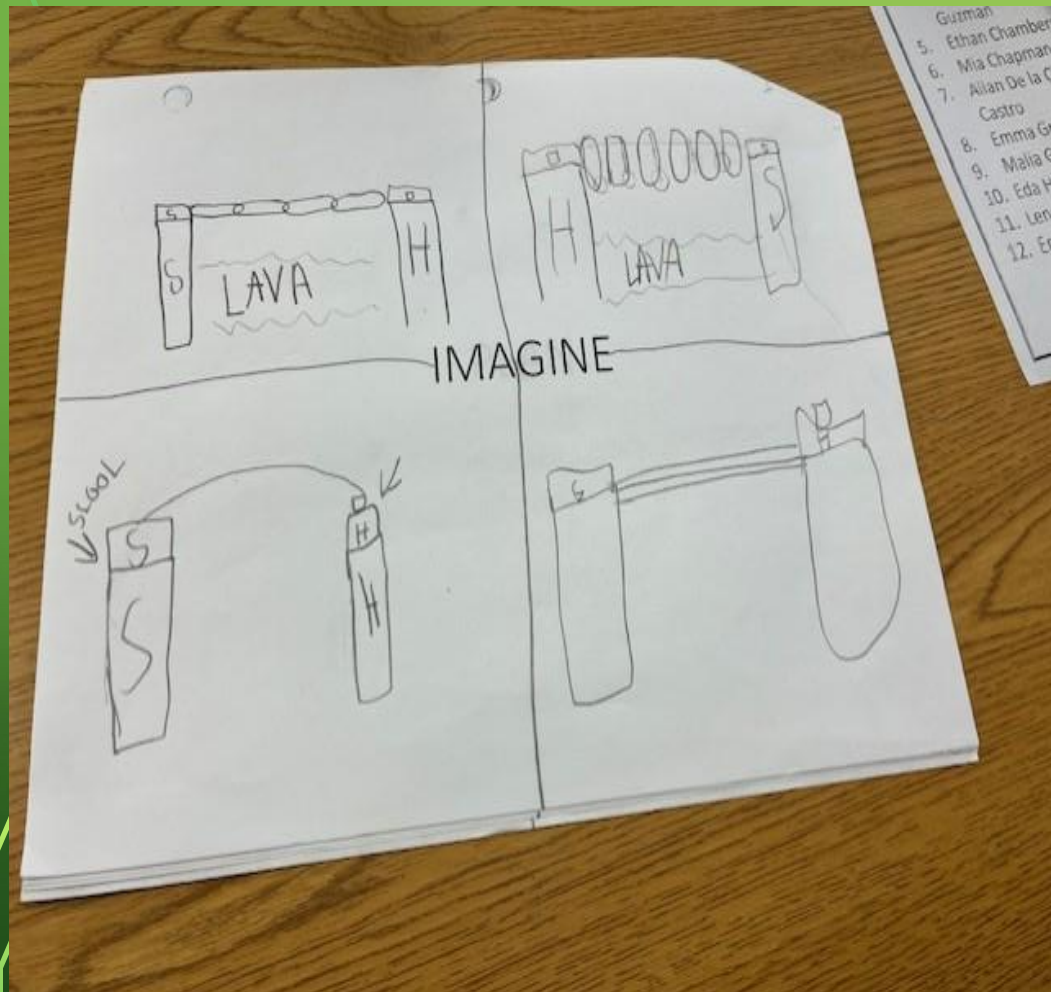


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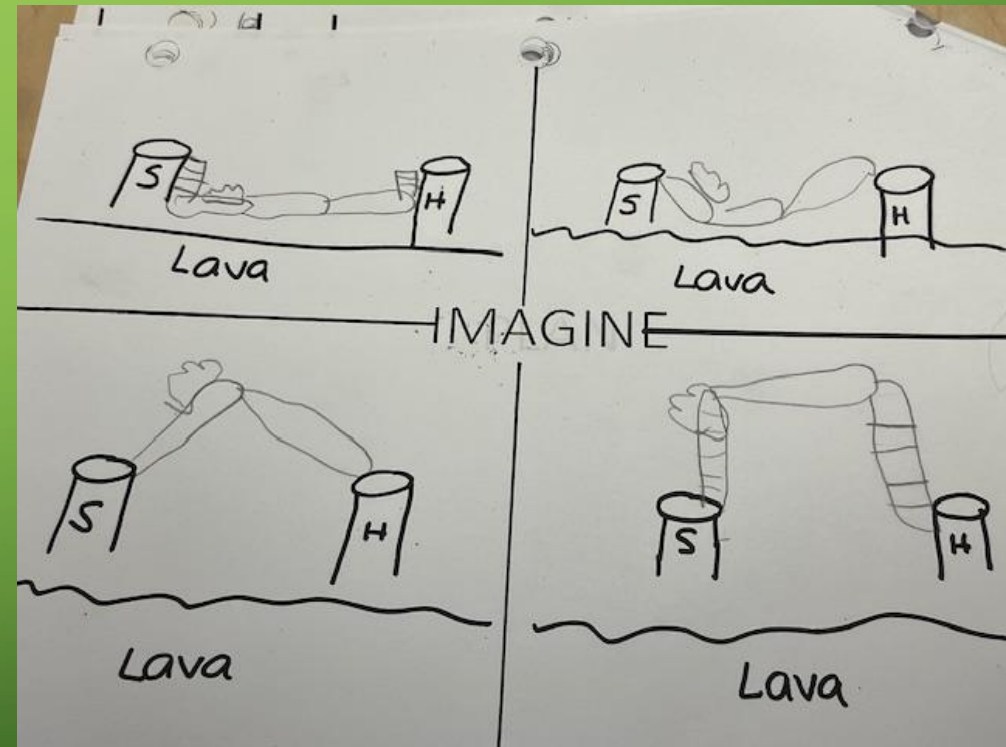
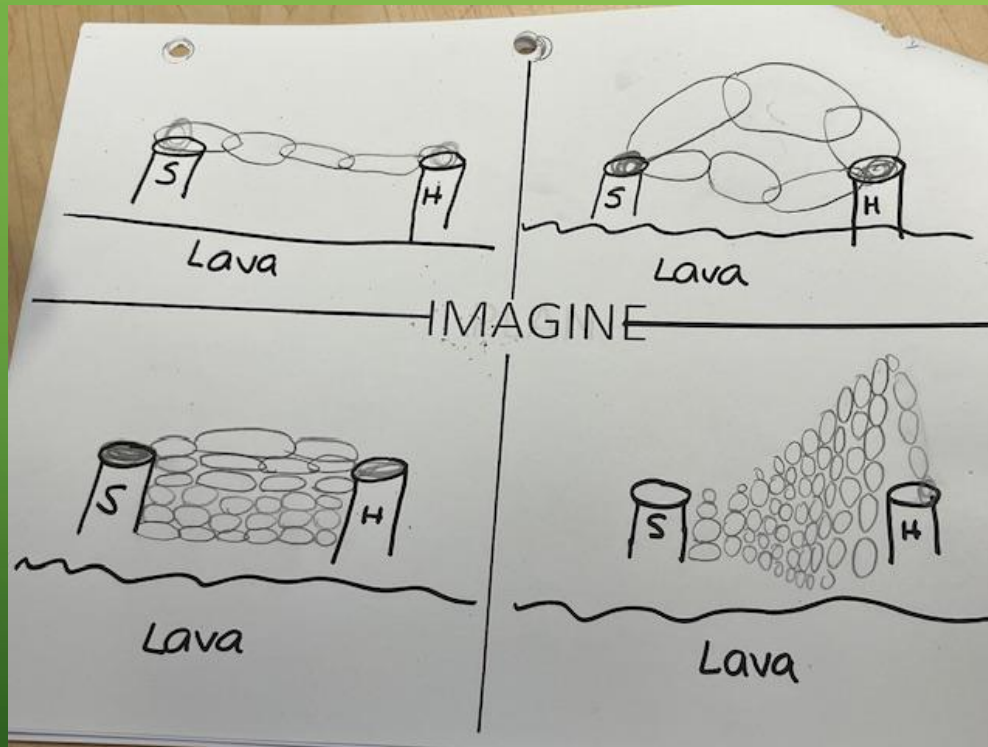
EXAMPLE OF STUDENT WORK



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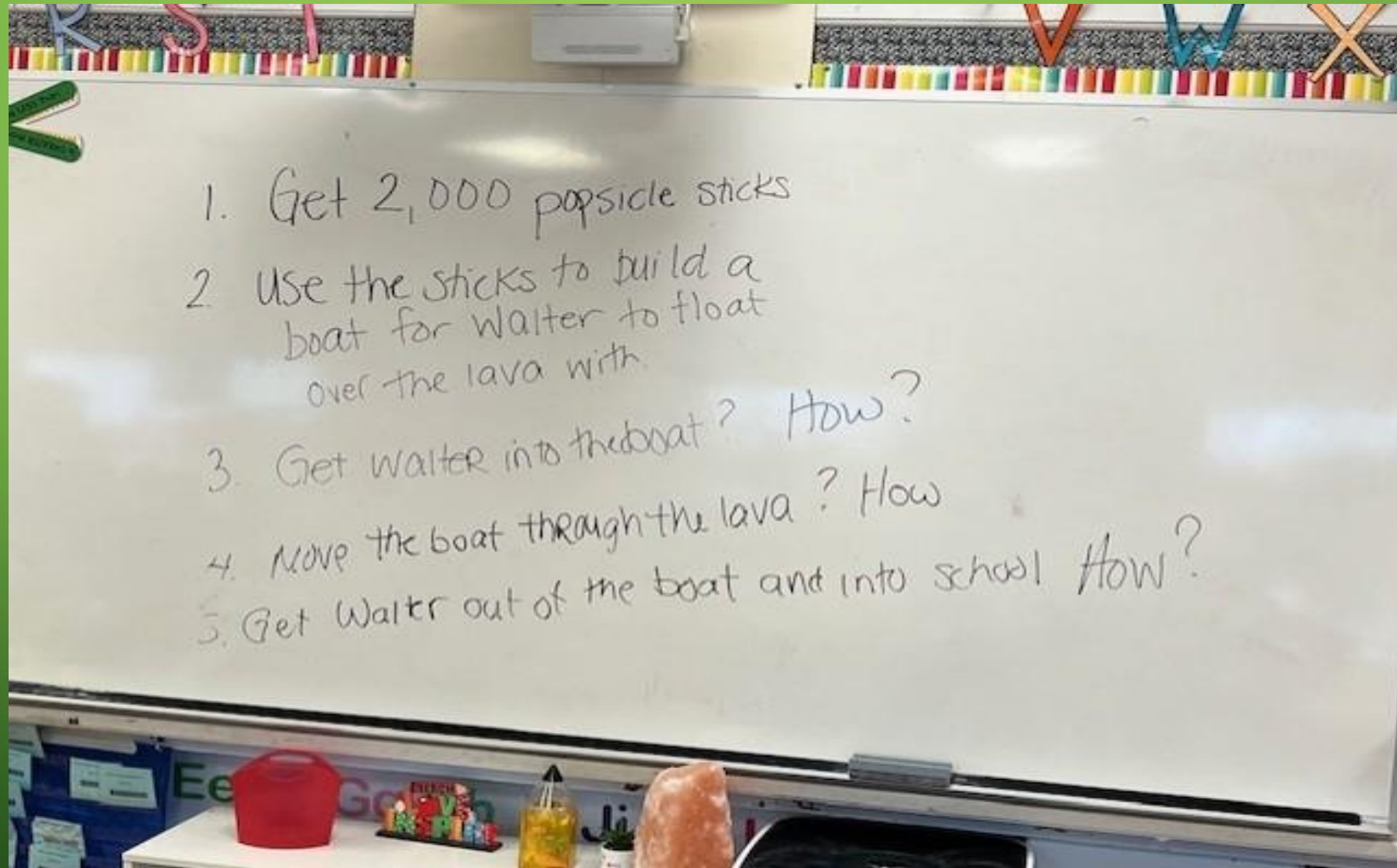


EXAMPLE OF STUDENT WORK

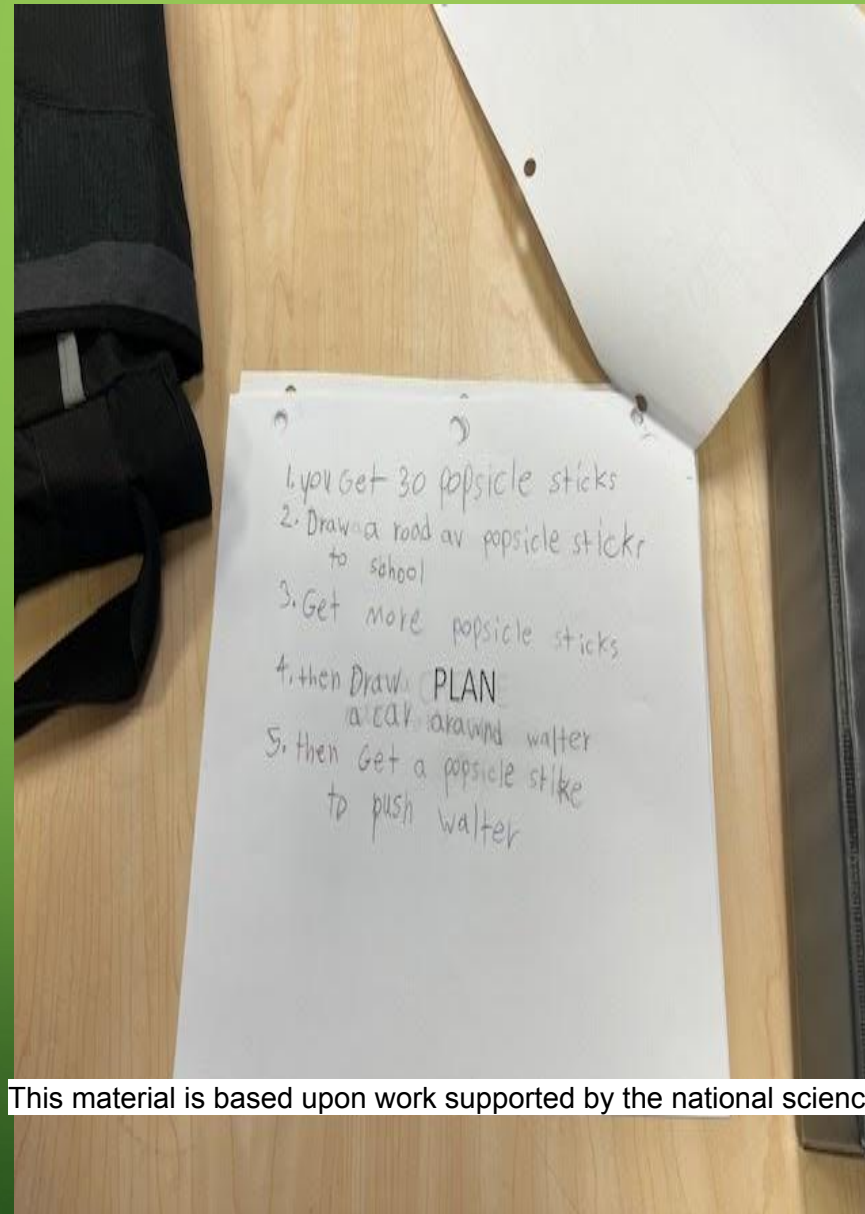


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PLAN

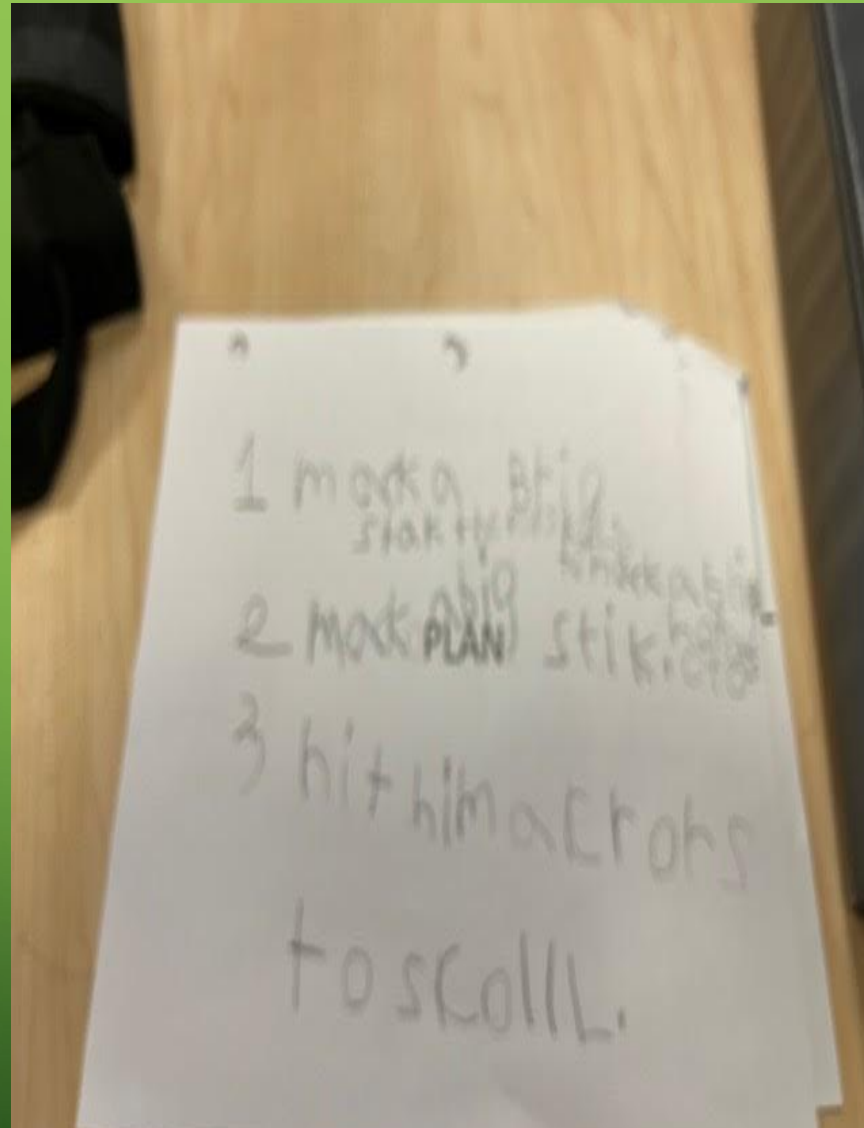


EXAMPLES OF STUDENT PLANS



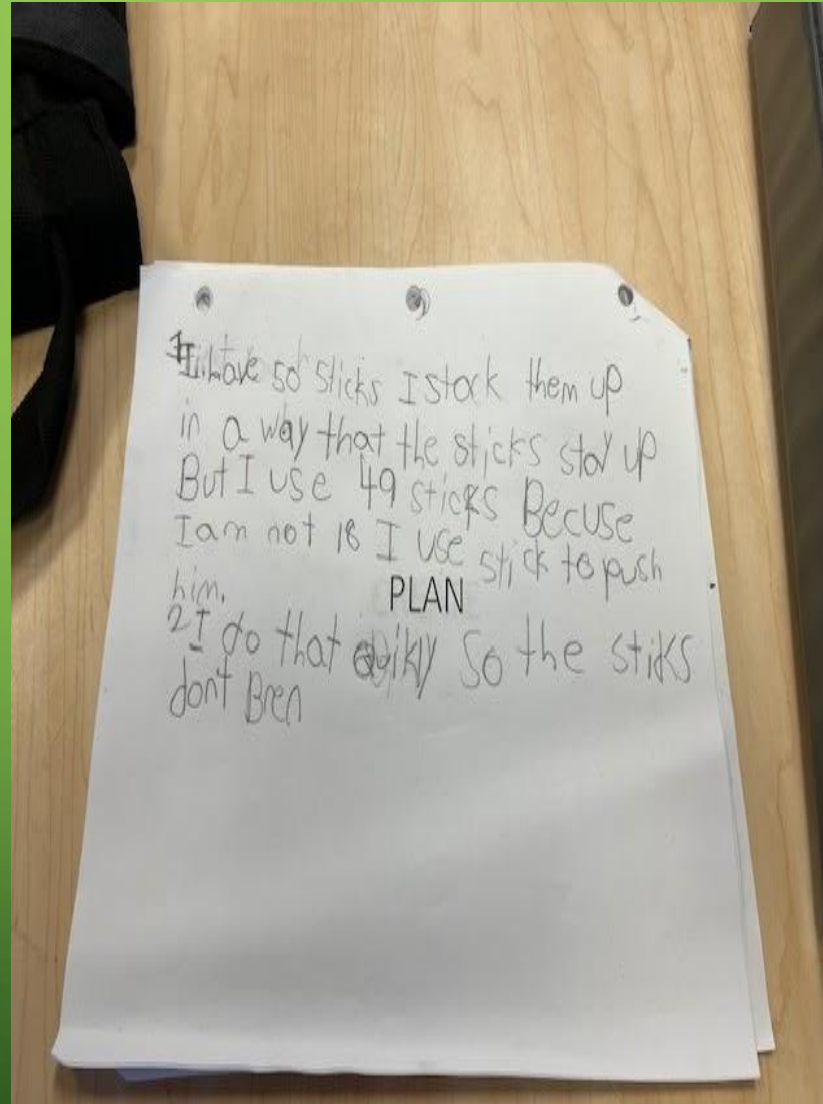
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EXAMPLES OF STUDENT PLANS



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Introducing the Concept of Failure

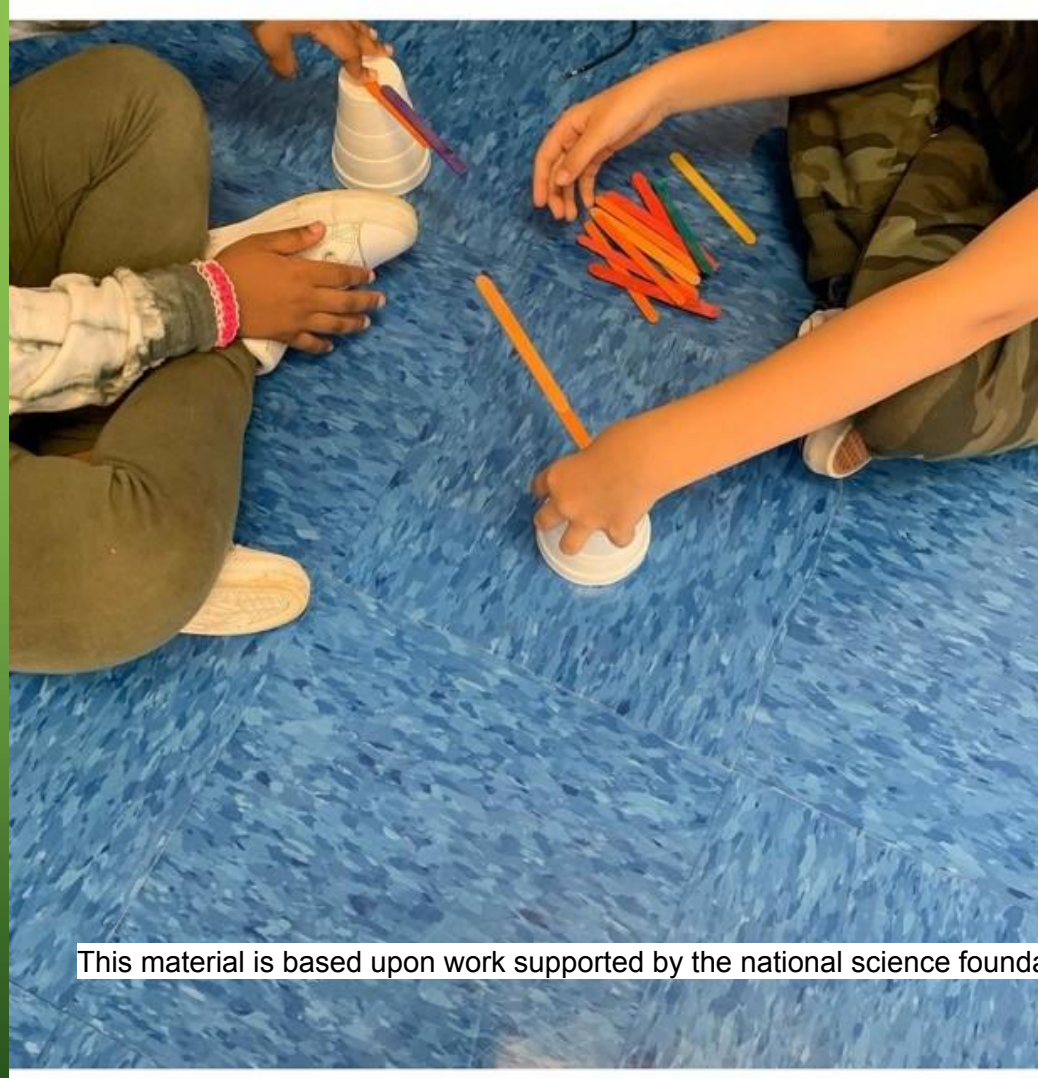


The background is a solid green gradient. In the corners, there are decorative elements resembling circuit board traces or neural network connections. These consist of thin, light-green lines that branch out and terminate in small circles. The lines are more dense in the top-left and bottom-left corners and more sparse in the top-right and bottom-right corners.

YOUR TURN! START IMAGINING, PLANNING, AND
CREATING!

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CREATE AND BUILD



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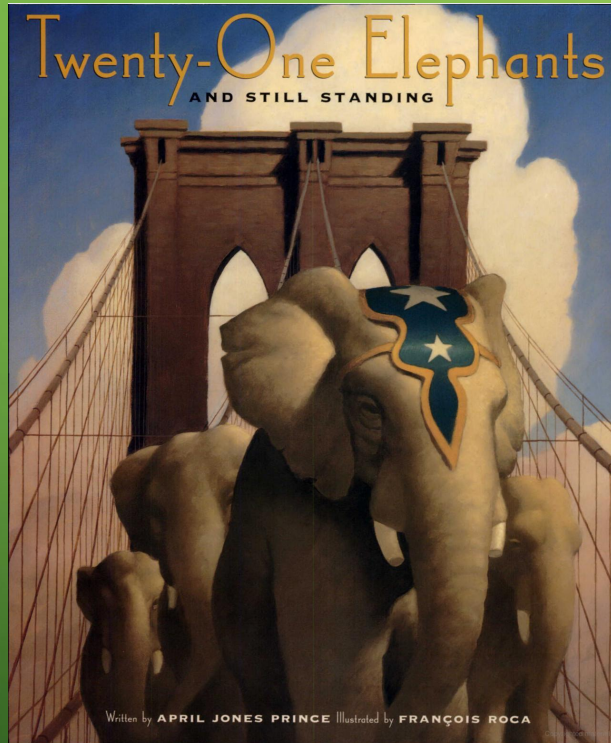


IMPROVE IT!

- Conferencing with individual groups
- Removal of all but 6 sticks
- Modeling / guiding

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EXTENSION PROJECTS



Walter now has 20 friends from school, and wants to throw a party, however, every great party has Rules!

1. The Walters must stand on their base, not their sides, heads, or stacked on top of each other
2. Walters can't stand on the part of the popsicle stick that touches the cup

Contact

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