

STEM CLUB CHALLENGE

Pencil Tower Challenge

Science:

Grade 1: Structures and Loads
Grade 3: Forces and Structures
Grade 5: Stable Structures
Grade 7: Designing Structures

Technology

<https://kids.nationalgeographic.com/awesome-8/article/skyscrapers>

Engineering

- Learn about traditional engineering knowledge of Haudenosaunee Longhouse
- Explore the job of Civil Engineering on EdgeFactor

Math:

Symmetry
Linear Measurement Skills
2D and 3D Shapes

Problem to Solve



Push the limits and design a towering structure of pencils that reaches new heights .

Constraints:

- 100 pencil limit
- 10 binder clips

1- Spark Your Mind:



Watch this video to spark your mind:

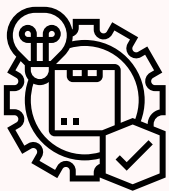
<https://youtu.be/Txki8jmtj1w?si=UZsSYEBUkoGn5ukq>

2- Think:



Think about the steps you have to follow and the materials you will need.

3- Build:



It's time to build. Gather your materials and your plan and start building!

4- Test and Improve:



Testing lets you try out your design to see if it works. Improving is about making your design even better.

- Can you make a tower that gets narrower at the top?
- Can you build a tower with a different shaped base?
- Can you build a tower with all the pencil erasers facing inside?

5- Share and Reflect:



Sharing what you have learned lets other people know about your topic too!

EVALUATION:

Evaluation Rubric:

I can build a prototype that solves the challenge	1	2	3
My prototype meets the constraints	1	2	3
I can accurately measure using a tape measure	1	2	3
I used different and creative solutions	1	2	3
I participated in the group work	1	2	3
I can explain how to improve this design	1	2	3