

MAKER EXCHANGE

AT CORONA PUBLIC LIBRARY

activity SUPER SKYSCRAPERS

THE CHALLENGE:

Build a freestanding two foot tall structure using common materials!



RECOMMENDED AGE 
8 and up

TIME NEEDED 
30 min - 1 hr

TOOLS & MATERIALS

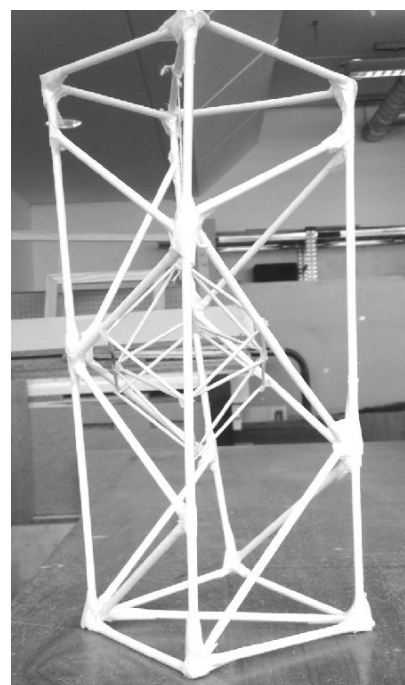
- 1 Sheet of 8.5 x 11 printer paper
- Cardboard (no complete boxes please)
- Straws (at least 10 recommended)
- Other items as appropriate
- Tape or Glue
- Scissors
- Ruler



GETTING STARTED - INSTRUCTIONS

STEP 1: IMAGINE YOUR DESIGN

Pull out one sheet of 8.5" x 11" paper to serve as the base boundary for your structure. The size of the paper is your only limitation in this activity. The base is very important, and we typically want to start there first and build upward. Look around to see what items are available to you, and use that to determine your design.



STEP 2: PREVENT ROTATION!

As you build, gravity will start to affect every single piece of material you add. Be sure to include some pieces laying across diagonally to help reduce this effect, known as torsion.



Gravity always pulls straight down, but the total forces may cause your structure to bend or wobble along the center!

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QUESTIONS TO CONSIDER ???

- Should the materials you use change as the height increases?
- How can you strengthen your structure while using the least amount of material?

KEY TERMS 🔑

- Torsion
- Rigidity

SIMPLIFY ⓪

If two feet is too tall for you to manage with what you have, try for just a one-foot tall structure.

EXTRA CHALLENGE ⊕

Try making your structure as tall as you are! Or, add some flair by designing the outside like a real skyscraper!

RELATED RESOURCES 🔍

- Free 3D design software:
<https://www.sketchup.com/>
- Awesome Skyscrapers:
<https://kids.nationalgeographic.com/explore/awesome-8-hub/skyscrapers/>

INSTRUCTIONS CONTINUED...

STEP 3: BUILD!

As you add to your structure, try to make sure you are maintaining rigidity, or the strength of your structure, and supporting any weak areas. You may even have to let the glue dry before continuing to build.



STEP 4: STEP BACK AND MEASURE (AND DON'T LET IT FALL!)

When you are finished building, clear the area around your structure, and take a photo! Now, grab a ruler and starting from the very bottom, measure up two feet. Did your structure make the cut? Let us know!

