

Spaghetti Skyscrapers

Kate Wojtas (@MrsMadame_) & Sarah (@SarahEVanLoo)

#MAETskyscrapers

Supplies:

Mini marshmallows

Straws

Contact paper or packaging tape to stick down shapes

Paper to make shapes

Paper construction ideas

Series of possible challenges, including:

- ~~Vessel for water~~
- ~~Vessel for volume~~
- ~~Longest paper chain with one piece of paper~~
- ~~Tallest tower & tallest tower that can hold weight~~
- ~~Building a bridge~~

Implement constraints

Display the engineering design process

Make a leaderboard for each challenge

- ~~Longest paper chain~~
- ~~Tallest tower~~
-

Two Challenges:

Kate ~~make a paper cup that can hold water without leaking~~

Sarah ~~build the tallest tower that can also hold the most weight~~

Marshmallow & Spaghetti towers

Name: Spagetti Skyscrapers

#MAETskyscrapers

TO DO ~~add to placard that marshmallows & spaghetti stay at our station~~

The Challenge

Architecture firm Skidmore, Owings & Merrill (who built the Burj Khalifa in Dubai), is looking for engineers for their newest skyscraper project. They've decided to hire two people, and will make their choice based on who creates the tallest of each model: the triangle tower and the square tower. Using the supplies provided, build the tallest possible freestanding tower that you can. If you manage to hold first place by the end of the Faire, you might very well find yourself with a new job!

Image: https://en.wikipedia.org/wiki/Burj_Khalifa

Materials & supplies

- **Small large** marshmallows, spaghetti ~~bendy straws~~, ~~seissors~~, tape measures, masking tape, hand wipes for sticky hands, bins for supplies, Kate's computer, What to Do placards (2 per table), ~~3~~ 2 tables
- We will have ~~3~~ 2 tables, marked out with 2-3 triangle bases on one table and 2-3 square bases on the other table.
- We will have containers of materials & straws on each table
- We will ask students to leave supplies in our area, so that we can reuse them and they don't end up all over the library. Our used supplies will go in the garbage at the library, and unopened marshmallows and straws (if any) will go back to Erickson at the end of the event.

Leaderboard

- We will use our hashtag #MAETskyscrapers to Tweet out leaders in both categories - triangle base & square base **& rectangle**
- ~~We will probably also use an online leaderboard, such as scoreshq.com. We are researching which one might work.~~
- Kate is creating a google doc that she will share for anyone with the link to view. She will create a shortened URL, using bitly. We will update it regularly during the event, and we will Tweet the updates. Bit.ly is done.
- Kate will use her computer on the day of the event to broadcast the leaderboard.

Learner objective

What will students learn at our booth? Why are we doing this activity?

Essential Question:

- How can I create a tall and stable structure out of straws and marshmallows? (remixed from <http://dhstem.weebly.com/straw-tower-challenge.html>)
- Visitors to our booth will have a chance to use the design process. (In Sarah's classroom, it's Ask, Explore, Model, Evaluate, Explain)

References for poster ideas, objectives, etc.

<http://creatend.org/2012/12/24/instant-challenge-tall-tower/>

<http://dhstem.weebly.com/straw-tower-challenge.html>

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The Challenge

Architecture firm Skidmore, Owings & Merrill (builder of the Burj Khalifa in Dubai), is looking for engineers for



their newest skyscraper project.

They've decided to hire three people, and will make their choice based on who creates the tallest of each model: the triangle tower, the rectangle tower, and the square tower. Using the supplies provided, build the tallest possible freestanding tower that you can. If you manage to hold first place by the end of the Faire, you might very well find yourself with a new job!



What to do

- Using only marshmallows and spaghetti, build the tallest tower you can.
- Build your tower on the base that's marked on the table.
- After you are done building, ask Kate or Sarah to measure how tall your tower is.
- Watch the leaderboard at bit.ly/2uDuqPA to see who has built the tallest tower.