

Super Structures

The challenge ...
Build the tallest
structure that will hold
the most pennies!

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Getting Started ...

- Get into your assigned teams.
- Get a copy of the project worksheet.
- Go to mrstomm.com → Assignments to find the rules to help your team fill in the worksheet.
- Turn in to the bin at the end of class. We will finish the worksheet tomorrow.

[1st Hour](#)
[2nd Hour](#)
[3rd Hour](#)
[6th Hour](#)
[7th Hour](#)
[8th Hour](#)

[Weds, 3/27](#)

- Continue **Building Big** project
 - Discuss **Super Structures** project rules - **CLICK HERE FOR RULES** ←
 - Set up building teams and start planning - **Think About It**
 - **Pictures from past projects available here** ←
- Continue working on the **Legends** playlists - Natural Hazards & Human Impacts
 - Two playlists with 2 games each (no battle quiz) for this week
 - Due by 3:30 PM on Friday!

<https://www.randomlists.com/>

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Materials

- Each team will be provided with a selection of “junk” to build a super structure (tower).
- Each team will receive only one set of materials and a large Ziploc bag to store it all in! No replacements will be provided!
- Teams may use all or part of the materials provided and are not allowed to share materials with other teams.

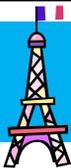
- 40 Wooden sticks
- 10 Pipe cleaners
- 10 Straws
- 10 Index cards
- 5 Cups
- 2 Plastic utensils
- 5 Paper bags
- 500 cm Masking tape*
- 500 cm Yarn/String*

Scissors will be provided by the teacher.

No other supplies allowed!

Trading Posts deals will be available!

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Schedule of Events

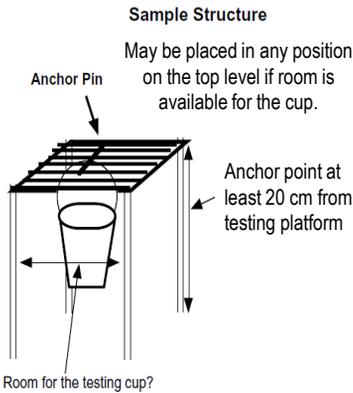
- Teams will be allowed time to build their structures during their science class periods. (Additional time is not allowed!)
- After the construction time is up, all structures will be impounded and no changes will be allowed!

3/25 Building Big	3/26 Skyscrapers	3/27 Planning	3/28 Planning	3/29 Build Day 1
4/1 Build Day 2	4/2 Build Day 3	4/3 Testing Day	4/4 Analysis Day	4/5 Unit Quiz

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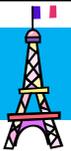


Structure Criteria



- The structure must be able to sit unaided on the table and may not be taped or attached to the table in any way.
- Structures must have an anchor point that is at least 20 cm from the testing platform (top of the table).
- Structures must be wide enough to allow room for the testing cup so that it does not touch any part of the structure or the table during the testing process!

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Testing Procedure

Each team will be allowed to select a testing cup and attach it to their anchor point.

- *The cup must be attached to the tower using the string and pencil provided.*
- *The cup and its parts may not be taped or tied to the structure, i.e. it is able to be picked up without having to unhook it.*
- *The cup and its parts may touch a part of the tower as long as it is not supporting the cup at that place. The tower should support the cup **ONLY** at the anchor point.*
- *Once the cup, its parts, and the anchor point have been approved by the teacher, **NO ADJUSTMENTS SHOULD BE MADE** unless it is reapproved by the teacher before adding pennies.*

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AFTER BEING APPROVED ...

Team members will begin adding pennies to the testing cup one at a time.

No adjustments to the structure, the testing cup itself, or the pennies in the cup are allowed after a penny is added!

At the time that the structure appears to have reached its maximum load, teams may be asked to wait 5 seconds before adding additional pennies. *Speeding up and/or dumping extra pennies into the cup at the last minute is not allowed!*

NOTE: The testing team should be the only team near the table while a tower is being tested. The testing team also needs to be careful not to bump the table or tower during testing.

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Testing will be done when:

- (1) the testing cup touches the table,
- (2) the testing cup is resting on (or supported by) any part of the structure, or
- (3) a penny falls out of (or off) the cup.

The team's score will be determined by multiplying the height of the anchor point in centimeters by the mass held successfully in grams.

The team with the highest score will be the winners!!!!

In case of a tie, the tallest structure (as measured at the anchor point) will be the winner.

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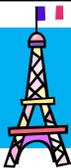
Project Grades

Grades for this project will be based on:

- Use of class time/effort (individual and group)
- Project worksheets and activities (individual and group)
- Application of related science principles/concepts
- Success of device (i.e. score compared to other teams)

This project will count as a test grade – 3 times!

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The First Step ...

Step 1:
Make a plan

Step 2:
Build your structure

Step 3:
Analyze your results

**Complete the
THINK ABOUT IT page.**

**Remember the device
requirements and testing
procedure as you plan
your structure.**

**Discuss your plans with
the teacher & have them
approved to get your
materials.**

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How do we build a good tower?

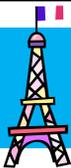
Look over your notes from the Skyscraper video for ideas to build a strong tower ...

Think about the activities on forces and shapes from the Building Big that could be used for design elements or braces ...

What ideas do you have from your own experiences building things or with the materials you will use?

Teamwork + good communication + good effort = Success

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What are the rules/goals?

What does each team need to do?

How long does each team have to build?

What does a team need to do before they can get the materials?

Questions?

Go to mrstomm.com → Assignments

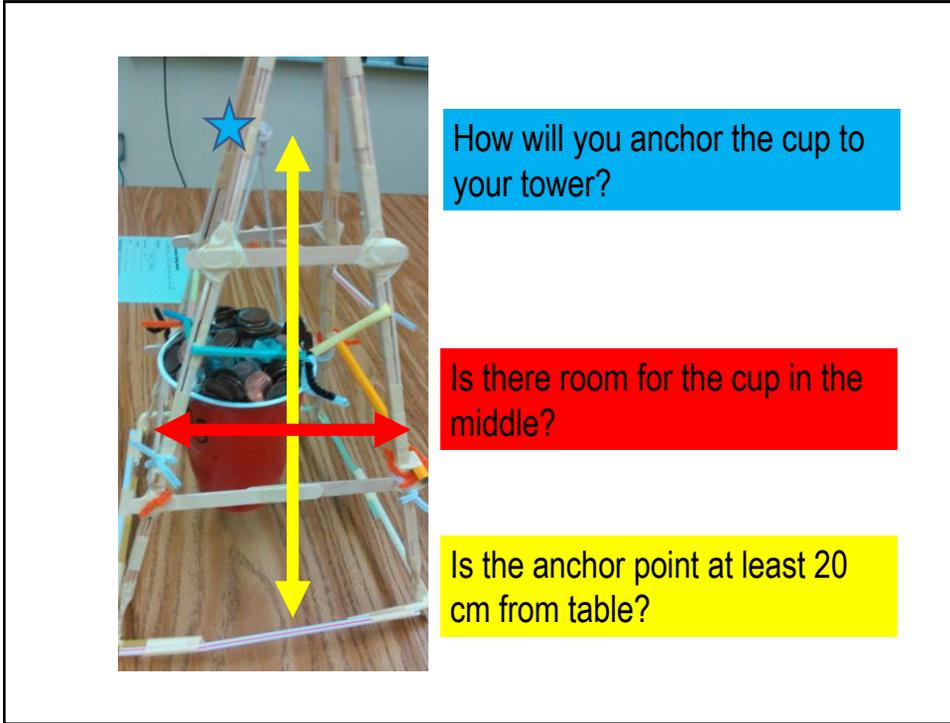
Project Files

Super Structure Rules

Super Structures FAQ

Super Structures Pictures

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**Think About It!
Super Structures**



Team Members: _____

1. Draw a sketch of your structure and label the anchor point. (-2)



2. Label at least THREE things ON THE SKETCH that you will do to make it as strong as possible. Provide evidence from your Building Big Challenge or other resources to support your choices. (-4)

3. How will you use the materials provided? Explain how you'll use at least THREE of the materials (structure, bracing, etc.) in your junk box to help you create a "super" structure. (-6)

(1) _____

(2) _____

(3) _____

Some things to consider ...

- Where will you place the anchor point? Label it on the diagram.
- Will it be at least 20 cm from the top of the table?
- Will there be enough room in the middle for the cup?
- What testing strategies will you use to help you earn the best score?

*How much do you think your structure will hold?
Give an estimate in grams.*

_____ grams

Draw your structure as best you can. Label your anchor point.

Write THREE sentences that describes three specific things you are doing to make it successful!

What are the main parts of a structure? What materials will work best for each part? Write THREE sentences explaining this section.

Give an estimate!

Discuss these questions with your group

You will be allowed to make changes as you build, but will need to use red pens to note them.

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Get your planning page approved.

Project Files

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Super Structures FAQ

Super Structures Pictures



Get your materials & a Ziploc bag.

Put all supplies & your planning page in the Ziploc bag.

Put the bag in the correct spot for your class period.

NO BUILDING TODAY - building time starts tomorrow!

Work on Legends or other homework.

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