

Thursday/Friday, August 23/24, 2018

Your Learning Goal: Students will work together to design, execute, and redesign a plan for a marshmallow tower.

Table of Contents: Marshmallow Challenge - 1R

Catalyst: (1L)

- 1) Name a minimum of 3 things can you learn from an engineering/design challenge?
- 2) What do you think you can do personally to contribute to your group's success?



Homework:

Digital
Syllabus

Agenda:

1. Catalyst
2. Individual Design
3. Group Design

Table of Contents

<u>Date</u>	<u>Assignment</u>	<u>Pg #</u>
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1. ASK

- What are the Problems?
- What are the Constraints?

The Engineering Design Process

2. IMAGINE

- Brainstorm Ideas
- Choose the Best One

3. PLAN

- Draw a Diagram
- Gather Needed Materials

4. CREATE

- Follow the Plan
- Test It Out!

5. IMPROVE

- Discuss What Can Work Better
- Repeat Steps 1-5 to Make Changes

Your Task

Your challenge is to use the engineering process to build a structure that can hold up a marshmallow. You must work effectively as a group, share ideas, and communicate clearly to design the tallest freestanding structure possible using limited materials and time.



8/23/18

Catalyst:

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LEAF:

1L

8/23/18

Marshmallow Challenge

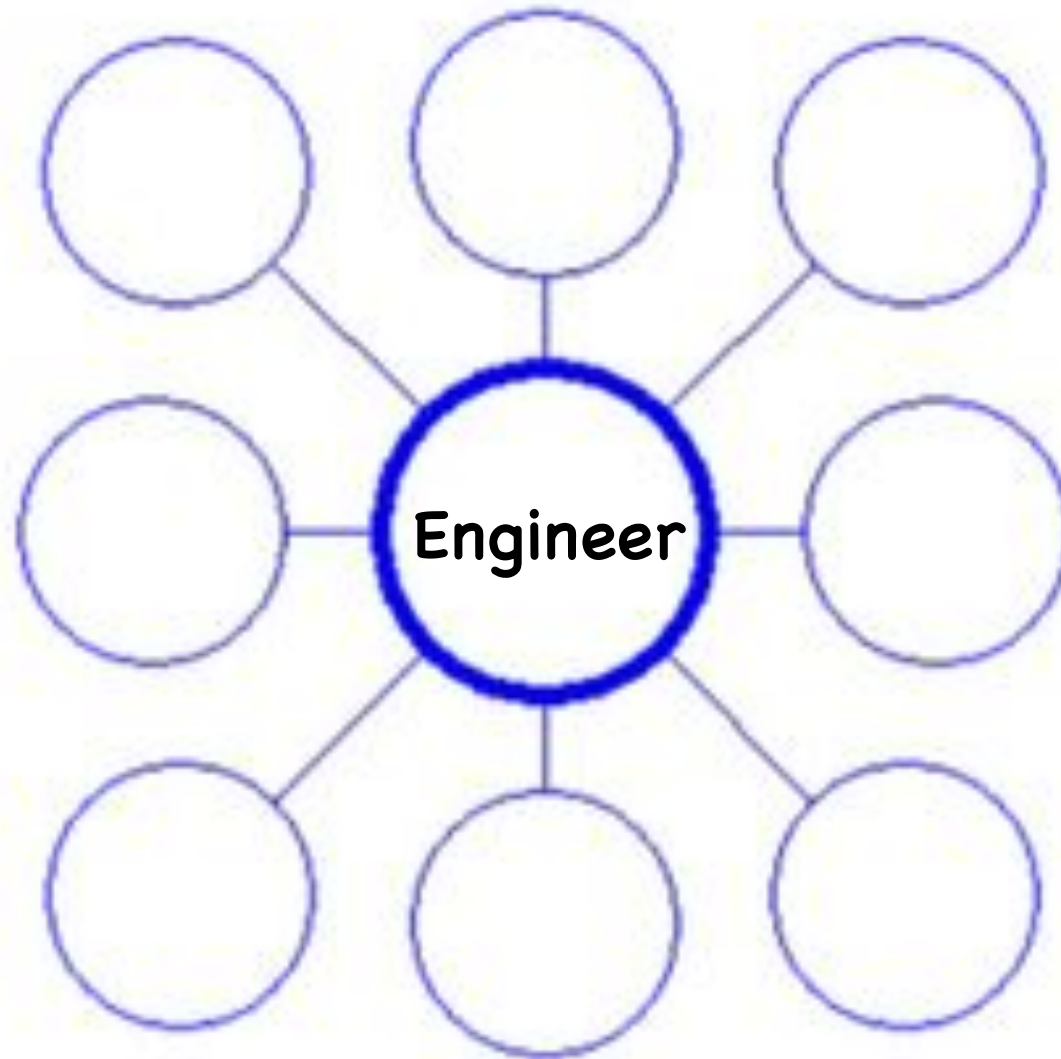
Bubble Map

Design 1

Design 2

1R

Bubble Map



8/23/18

Catalyst:

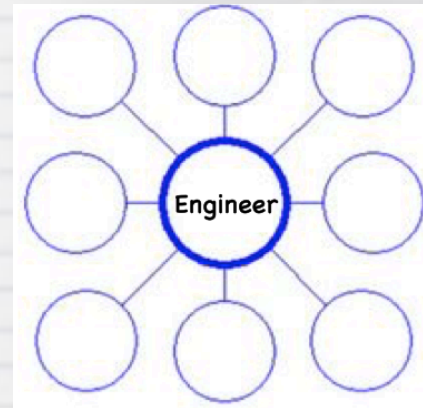
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Marshmallow Challenge



Design 1

Design 2

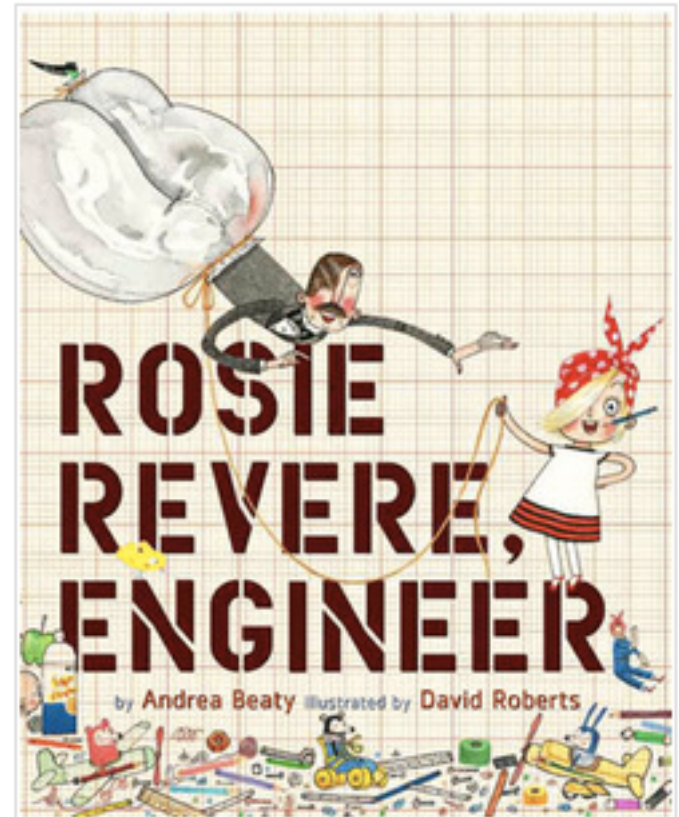
1R

Story Time

While you are listening to
Rosie Revere Engineer ...

Make changes to your Bubble Map
by adding or crossing out the
characteristics you already have.

Remember, to use a **DIFFERENT**
color when revising!



Rules

- 1) You are competing against yourself not other teams.
- 2) Every member must contribute to the design/building process.
- 3) The ENTIRE marshmallow must be on top. Cutting or eating the marshmallow is not allowed.
- 4) Use as MUCH or as LITTLE of the materials that you would like.
- 5) You are free to break up the spaghetti, string, or tape but you will not receive more supplies.
- 6) You can only build for 18 minutes. You cannot touch your structure once your time is up!
- 7) I will measure the height of the structure from the top of the table to the top of the marshmallow.

Plan!

- In your notebook, you will individually have 3 minutes to design a structure.
- Then, you will have 2 minutes to pitch your design to your other group members.
- Finally, the group picks one design (or combine designs together) to build!!

8/23/18

Catalyst:

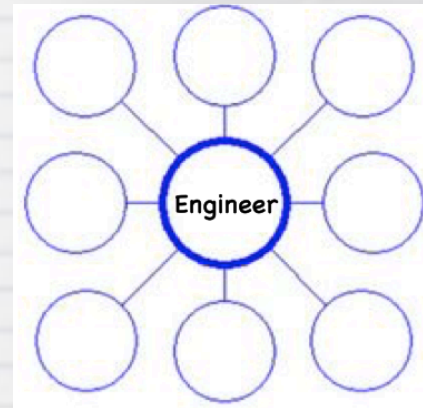
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Marshmallow Challenge



Design 1

Design 2

1R

Round-Robin Sharing

In order to share, put your notebook in the middle of the group!

- As each person shares, the other group members will say one thing they like about the design.
- Finally, the group picks one design (or combine designs together) to build!!

Rules

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- 4) Use as MUCH or as LITTLE of the materials that you would like.
- 5) You are free to break up the spaghetti, string, or tape but you will not receive more supplies.
- 6) You can only build for 18 minutes. You cannot touch your structure once your time is up!
- 7) I will measure the height of the structure from the top of the table to the top of the marshmallow.

BUILD IT!

- Using your final design, you now have 18 minutes to build your structure.
- **Remember:**
 - You cannot cut or eat the marshmallow. It must be put on top
 - You can use as much or as little of the materials as you want
 - If you make any changes to your design, be sure to reflect that in your notebook.


Time to Measure!

Group #	Height (cm)
1	
2	
3	
4	
5	
6	
7	

Text Tags

- Use the **Text Tags strategy** to keep track of important information while reading the article *Creating Great Buildings*.
- While you are reading, make sure you look for information that will help you improve your marshmallow tower. **Use your paper to record your revisions and evidence.**
- You have **15-20** minutes

Text Tags

<u>Text Tags</u>		<u>Steps</u>
?	I am confused about ... / I have a question about ...	<ol style="list-style-type: none">1) Number the paragraphs.2) Read the first paragraph.3) Underline a sentence.4) Draw the text tag symbol next to the underlined sentence.5) Explain the text tag using the sentence starter.6) Underline another sentence, draw the symbol, and explain.7) Repeat for the rest of the article.
	This vocabulary word means ...	
!	This is interesting/surprising because ...	
✓	This is important because ...	

Paired Reading

- Use the **Paired Reading strategy** to read *Creating Great Buildings*.
- While you are reading, make sure you look for information that will help you improve your marshmallow tower. **Use your paper to record your revisions and evidence.**
- You have **15-20** minutes

Paired Reading

- **Person A** reads one paragraph to **Person B**
- **Person B** listens carefully and summarizes the main point of that paragraph.

- **Person A** and **Person B** switch roles.
- **Person B** reads one paragraph.
- **Person A** summarizes the main point of the paragraph



Ted Talk : Marshmallow Challenge

Redesign

Task: You will now meet in your groups to redesign your marshmallow tower.

Things to think about:

- 1) What worked with your first design?
- 2) What didn't work?
- 3) What improvements can you make?
 - 1) Think about BOTH the article and Ted Talk

Plan!

- In your notebook, you will individually have 3 minutes to design a structure.
- Then, you will have 2 minutes to pitch your design to your other group members.
- Finally, the group picks one design (or combine designs together) to build!!

8/23/18

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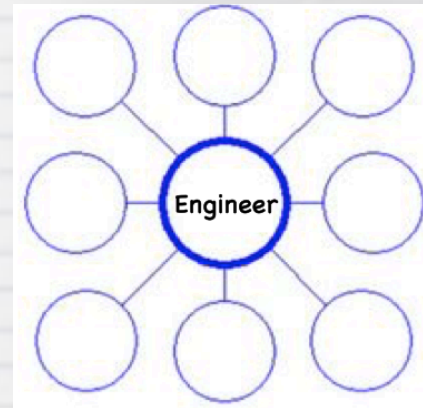
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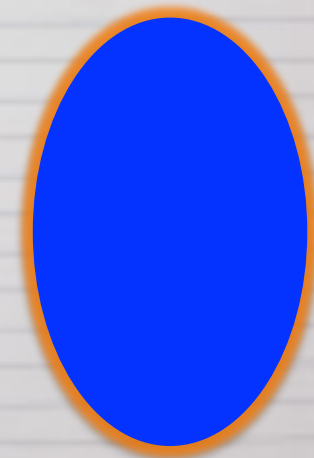
1L

8/23/18

Marshmallow Challenge



Design 1



Design 2

1R

BUILD IT!

- Using your design, you now have **18 minutes** to build your structure. You are now competing against your ORIGINAL design!
- Remember:
 - ✓ If you make any changes to your design, be sure to draw this on your paper.

Rules

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Time to Re-Measure!

Group #	Height (cm)	Height (revised)
1		
2		
3		
4		
5		
6		
7		

Let's Graph

Title:

Y Label:



X Label:

8/23/18

Catalyst:

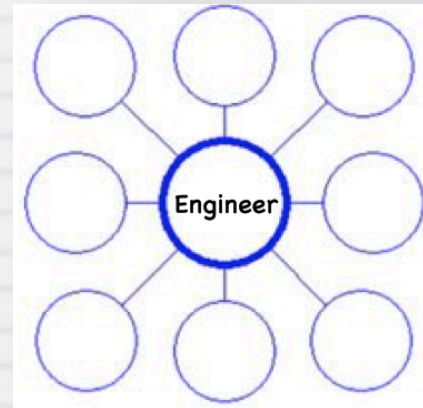
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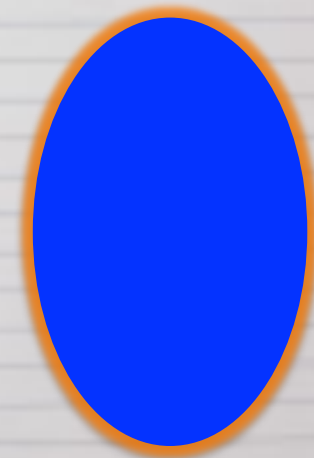
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Design 1



Design 2

1R

LEAF

Rough Draft on 1L

Lead: Where you state the topic of your paragraph.

My team's marshmallow tower (failed, became taller, stayed the same) in trial two versus trial one because...

Evidence: Observable and quantifiable data that a writer uses to support a claim. (Use your numerical data from trial one AND trial two to support your lead)

Analysis/Warrant: Certain rules that connect evidence back to claims—how the evidence supports the claim.

Finisher: Restating your claim in a new way to provide closure for your argument. (Connect your evidence to the larger class data/graph. What is the major take-away or theme here?)