

Think like an engineer

Take the marshmallow & toothpick challenge!

Engineers start with a challenge:

- How to solve a problem
- How to improve on something that already exists

They review information they already know, think of ideas and imagine solutions, plan something to try, build it and test it, and then think about ways to improve on that!

Here's your challenge:

What is the tallest freestanding structure you can build with 20 marshmallows and 25 toothpicks?

Start with what you know...

- What shapes can you make with your marshmallows and toothpicks?
- Which of these shapes are strongest? (Wobble them to find out!)
- Think of a plan, and begin building!

To extend into a full engineering design lesson:

1. Students take the challenge (give a time limit, approximately 5 minutes).
2. After building, students measure height of structure, note the data.
3. Discuss observations. What strategies did students try? What worked, and what didn't?
Why?
4. Students consider ways to improve on their earlier design or approach. Try again. Can they beat their own previous record?
5. Discuss results. What was the most successful strategy? Why?

EXTENSION:

Now, change the challenge! Using the same materials what is the strongest structure they can build? Can they build something that can hold a deck of cards? A book?