Spaghetti and Marshmallow Tower! Design Brief

Activity:

It has probably been a long time since you sat down to problem solve, well today is your chance to get your brain working. Unfortunately, on my way to school today I got stuck behind two trucks. One truck was carrying spaghetti and the other truck was carrying marshmallows. They were both driving very slow and I started to get very hungry. Then my bad luck changed as the doors to both trucks swung open and piles of spaghetti and marshmallows blew into my car. I had a nice snack and now have supplies for a great project! Through this problem solving activity you will use the problem solving process to aid in the completion of a tower.....wait for it.....made of.....SPAGHETTI and MARSHMALLOWS?!?!?

Challenge/Problem:

• To construct a tower as high as possible using spaghetti (members) and marshmallows (joints). Pieces of spaghetti (members) may be broken into desired lengths.

Constraints:

✓ Plan and develop your tower using the Problem Solving Process
✓ Must use 20 pieces of spaghetti or less
✓ Must use 15 marshmallows or less
✓ Groups of two people only

TOP TIPS!

1. Make sketches of any good ideas you have and make plans for how you will construct the tower – good planning and design are essential to building a successful tower!

2. Where you choose to use shortened pieces of spaghetti, make sure you cut them accurately. If you don’t use pieces of equal length in a particular section of the tower, it may start to twist and topple.

3. Use shorter pieces of spaghetti or put in braces (triangular supports) to help support squares or rectangles in your tower.

4. Think carefully about whether the spaghetti should pass all the way through the marshmallow, or not..... Remember that the strength of a joint is dependent on how well the marshmallow can ‘grip’ the spaghetti strand without it slipping.

5. There will be most stress at the base of the tower – think about how to add strength here.
Problem Solving

1. Identify the problem:
__________________________________________________________________
__________________________________________________________________

2. Research:
    Strongest Shape → ________________________________________________

    Where is the widest part of a tower → ______________________________

3. Brainstorm:
    Draw 4 thumbnail designs for your spaghetti and marshmallow tower

4. Pick Solution:
    Draw design you are going to create

5. Build it!!!

6. Test Solution: Does it stand? _____    How tall is it? ________

7. Evaluate Test

What do you like and dislike about your current design?
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

What was the biggest challenge you faced? How did you overcome it?
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

If you had an opportunity to redesign your tower, what would you change?
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________