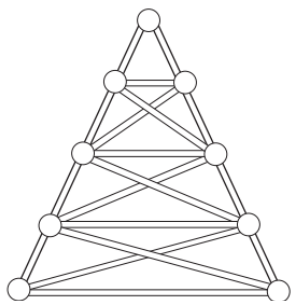


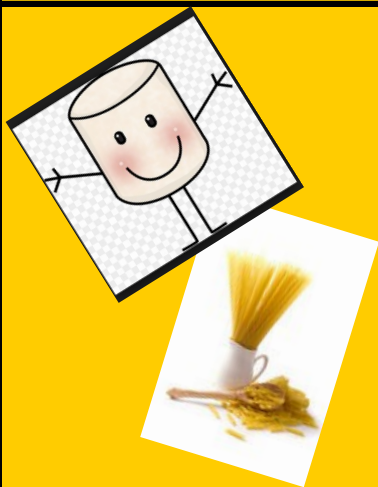


The Tower of Power Challenge!



The Great Engineering Challenge!!

Do you think you can construct a tower out of dry spaghetti and marshmallows? This is your challenge!



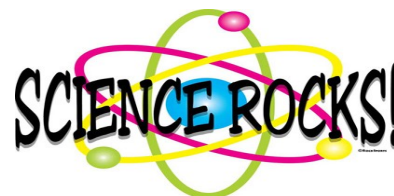
Purpose:

The goal of this activity is to use dry spaghetti and marshmallows to build the tallest free standing tower possible. The tower must stand without support for 30 seconds.

Materials:

You will need:

- Dry spaghetti
- Marshmallows

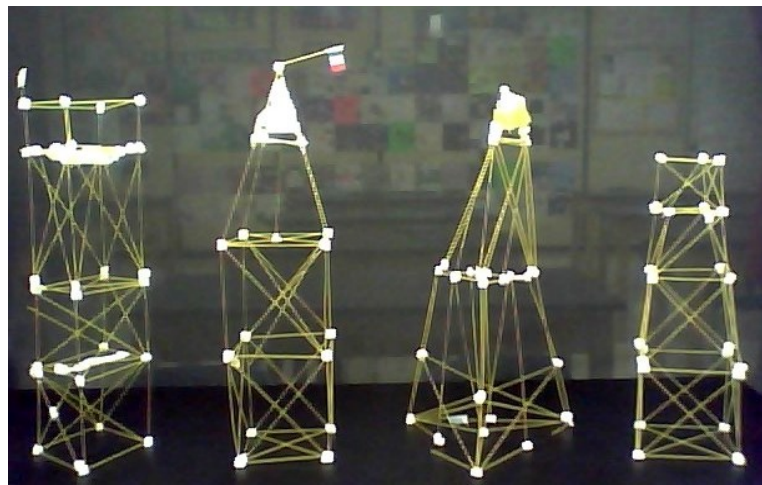
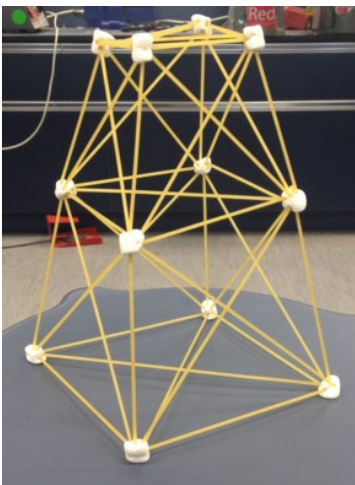


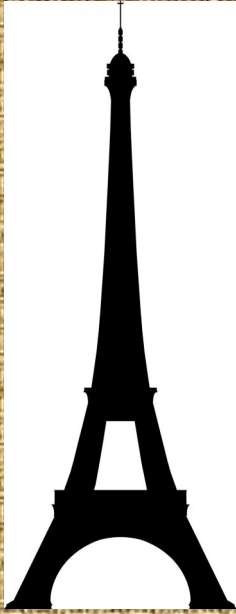
Procedure:

- Your Team's Challenge:
 - Construct a tower using only marshmallows and spaghetti. Your tower must stand unaided for 30 seconds.
 - The spaghetti provides the framework and support for the tower. The marshmallows are used to connect the spaghetti.
 - The tallest tower to remain standing unsupported for 30 seconds, with the least expense will be considered to be the "Tower of Power." So, if you spend more on your tower, you will potentially take your tower out of Tower of Power consideration.
 - Remind the students that the only materials that can be used are supplied at the station, additional materials will not be provided. We must have enough materials for everyone.

Tower Building Tips & Suggestions:

- ⇒ **Building materials**: Dry spaghetti and mini-marshmallows may not sound like good building materials for a tower, but amazingly elegant structures can be made from these materials. The spaghetti provides the framework and support for the tower and the marshmallows provide the connecting elements between the spaghetti. The strength of a marshmallow joint is determined by how securely the marshmallow is able to hold the spaghetti. Failure is most likely to occur where there is greater weight on the joint or lower on the tower. A firm base is important to support the tower, the base cannot be too narrow.
- ⇒ **Making strong shapes**: The shapes that are used to build structures like towers are very important. The strongest shapes are triangular in shape, square shapes tend to collapse more easily. Square shapes will collapse at their joints, with more joints comes greater opportunities for failure. Suggest that students use both triangles and squares and use a diagonal piece of spaghetti to support the square.
- ⇒ **Compression & Tension**: Even though a tower may be standing perfectly still, the individual parts of the structure are exerting forces upon one another. There are compression members where structures are being pushed and tension members where structures are being pulled. When these forces are balanced, the tower is likely to be stable and strong.





Our Plan:

Draw your Tower

Reflection:
