

Marshmallow Challenge

Resume / Brief description	The goal of this exercise is to build the highest free-standing structure using supplied materials. The teams must cooperate in a well-organised way to build the structure in a relatively short time. The challenge should be performed in a room big enough to allow all team members free access to the tables where structures are being built.
Target group	Students Lecturers Entrepreneurs Colleagues of the same company or work team Professionals of different areas
Objectives	To work in a team To collaborate within short time
Requirements	20 sticks of spaghetti Half a metre of masking tape Half a metre of string One marshmallow
Implementation - Overview	Remember to prepare all materials before the challenge. Start with creating teams, then ask one person from each team to collect prepared materials. Clearly define and describe the rules and do not forget to mention that this is a competition with a prize. Ask for possible questions. Perform the challenge using a stopwatch and play up-beat music in the meantime. Be active during competition – walk from one team to another. When the time counts down, measure all standing structures, and write down all results in a visible place (e.g. black board, projector). Prepare the prize for the winning team. Do the summary, draw the conclusions to show that this challenge is not only for the fun, but is has a deeper meaning related to rapid prototyping, testing solutions and methods of education. The overall time needed to finish this exercise is about 50 minutes.



Implementation -Guidelines

1. Assemble sets of materials for each team. Every set contains twenty sticks of spaghetti, half a metre of masking tape, half a metre of string and one marshmallow. If the string is too strong, provide access to scissors (one for three teams). Marshmallows should be in standard size with a shape close to a cube or cylinder. Ingredients can be optionally placed into a paper bag, which simplifies distribution and hides the contents, maximising the element of surprise. Other important tools needed for the exercise are measuring tape, countdown application or a stopwatch. There are plenty on the web or use a smartphone. The best option is when teams see the timer. In addition, a video projector and sound system are required. Use the projector for rules presentation, the stopwatch and showing the final movie. Use the sound system for an effective communication with the audience, especially during the challenge, when it is very loud. Play music during the contest. The prize can be a new box of marshmallows, book, or even a small amount of cash.
2. Create teams. Teams can be formed randomly but can also be created by people who know each other. The size of the team should be 4 to 5 members. If you have the possibility, check both options for team formation.
3. Present everyone the rules. The goal is to build the tallest freestanding structure. The winning team is the one that reaches the biggest distance from the tabletop surface to the top of the marshmallow. The structure cannot be suspended from a higher structure, like a chair, ceiling, or chandelier. The entire marshmallow needs to be on the top of the structure. Cutting or eating part of the marshmallow disqualifies the team. Use as much or as little of the kit, for example the team can use as many or as few of the twenty spaghetti sticks, and as much or as little of the string or tape. If the paper bags were used, then the teams cannot use them as a part of their structure. The teams are free to break the spaghetti and cut up the tape and string. The time for the challenge is 18 minutes. The teams are not allowed to hold the structure during measurement. The structure must stand for at least 10 seconds.
4. Ask for questions before the start. There are always any.
5. Start the challenge. Walk over the room and enjoy the teams' creativity. Try to visit all teams, but do not suggest anything to them. Answer the questions if there are any. Remind the teams about time (e.g. every 6 minutes, focusing on half of the time).
6. Finish the challenge. You can ask everyone in the room to sit down so everyone else can see the structures. Measure all structures and write down the results in a well seen place. Remember to identify the winning team. Ensure that they get a standing ovation and give them a prize.
7. Talk with the teams about their feelings related to the competition. What was easy? What was challenging? Focus on cooperation, leadership, the most time-consuming part and surprises.
8. Show everyone the movie at TED2010 by Tom Wujec (see "Additional formats/references" below).
9. Draw conclusions after the movie and discuss it with the group. Some observations are:
 - Kids do better than business students.
 - When talking about creativity, kindergarteners create taller and more interesting structures.
 - Prototyping matters. The reason kids do better than business school students is that kids spend more time testing the solution and prototyping. They naturally start with the marshmallow and stick in the sticks.
 - The business school students spend a vast amount of time planning, then executing on the plan, with almost no time to fix the design once they put the marshmallow on top.
 - Metaphor for the hidden assumptions of a project. The assumption in the Marshmallow Challenge is that marshmallows are light and fluffy and easily supported by the spaghetti sticks. When you try to build the structure, the marshmallows do not seem so light. The lesson in the marshmallow challenge is that we need to identify the assumptions in our project - the real customer needs, the cost of the product, the duration of the service - and test them early and often. That is the mechanism that leads to effective innovation and good product or service design.

Additional format/references

The movie recorded at TED2010 with Tom Wujec can be accessed at https://www.ted.com/talks/tom_wujec_build_a_tower_build_a_team/transcript



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