



# 2017 SECONDARY SCHOOL DESIGN & BUILD COMPETITION

Venue: JFK Auditorium, The University of the West Indies, St Augustine Campus

Date: Saturday 28<sup>th</sup> January 2017

## Brief

For this year's Secondary School Design & Build Competition, teams of students will compete to design, build and test to failure a bridge formed with spaghetti and marshmallows.

The bridge must span a minimum length of 300mm and have a minimum width of 100mm. Teams will be asked to test their bridge by hanging weights from the center of the span. The team that builds the bridge that can support the greatest weight using the least amount of materials is the winner.

The students are to complete the design and construction of their bridge within 2 hours, following which no additional work must be done. A team shall consist of no more than six (6) students.

## Material Requirements

- 1 Pack of Eve Spaghetti (400g)
- 1 Pack of KC Candy Marshmallows (255g)

## Testing and Judging

Each school's bridge will be tested to failure by hanging weights from the centre of the span until it collapses.

The winning bridge will be decided according to the following criteria:

1. Maximum weight supported before collapse



## Prizes

The prizes for this year's competition will be as follows:

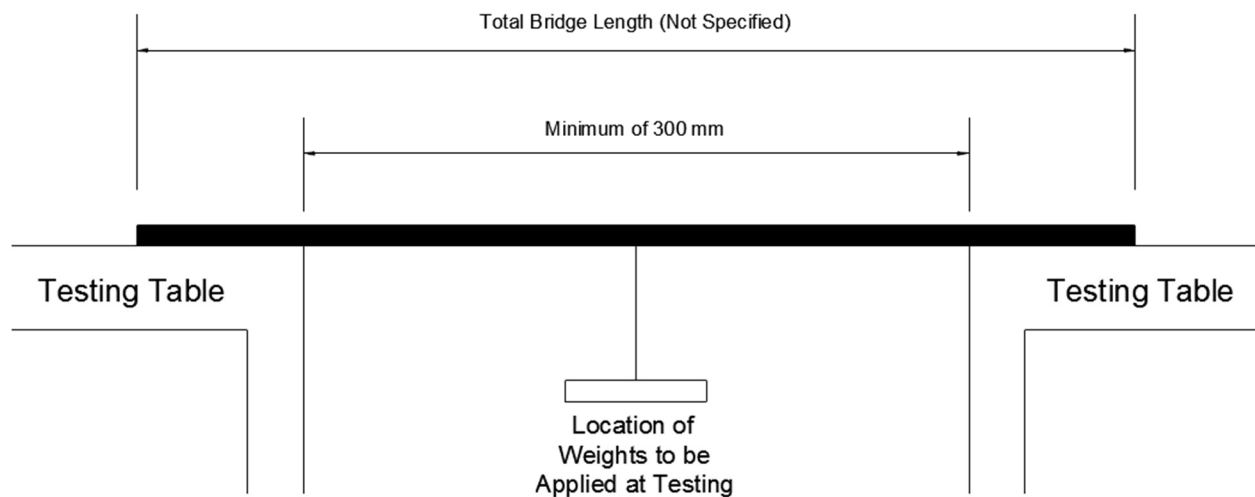
- 1<sup>st</sup> Place: \$6,000
- 2<sup>nd</sup> Place: \$3,000
- 3<sup>rd</sup> Place: \$2,400
- Best Aesthetic Design: \$2,400
- Consolation Prizes to be won

## Rules of the Competition

1. All bridges are to be constructed of only the spaghetti and marshmallows to be provided at the competition site. Refer to the materials listed above for the exact brand and amount that will be supplied on the day.
2. The bridge should be designed and built to span a minimum of 300mm.
3. The bridge deck should be no less than 100mm in width.
4. There are no height requirements for the bridge.
5. Note that the only support allowed for the bridge is at the top of the testing table as shown in the diagram below.
6. No part/member of the unloaded bridge should be below the level of the testing table as shown in the diagram below.
7. The bridge is to be loaded with weights hanging from center span.
8. The completed bridge should at minimum be capable of supporting 100g at its mid-span.
9. Design and construction of the bridges is to be completed within a time period of 2 hours; following which, no additional work on the bridge must be done.
10. Each bridge shall be checked to confirm that the minimum clear span and the minimum deck width are as specified in the rules.
11. Any non-electrical powered mechanical hand tools may be used but no other materials apart from what is supplied at the start of the day shall form part of the bridge. Note that no heating elements are permitted (matches, lighters, etc).
12. Students will not be able to ask for any additional materials on the day of the competition.
13. Failure is considered as total collapse of the bridge.
14. The recorded bridge strength shall be the load supported by the bridge, at the load step just before collapse. This is the weight that will be recorded. Note that the bridge cannot be loaded while deformation is taking place (i.e. while the bridge is moving). Therefore, the bridge must be static prior to increasing the load to its next load step.



15. The bridge which carries the greatest weight will be the winning bridge.
16. Each school is limited to ONE team consisting of a maximum of 6 students.
17. Teachers and Parents are not allowed to assist the students on the day of the competition.
18. Refer to the sketch below for minimum dimension requirements and loading parameters only.
19. The judges reserve the right to disqualify any bridge that does not conform to the requirements stated in these rules.



**Student's bridges can vary in height, length and width but will only be allowed to be tested providing the minimum requirements stated in the rules are met.**

## Important Information

Students are to arrive at 8.15 am at the JFK Auditorium, UWI for Registration.

Students are to be either in school uniform or their school polo/t-shirt and jeans. Note that all students must wear sneakers.

The event is scheduled to end at 2.30pm.

Light lunch and refreshments will be served to participating students and 1 school volunteer.

Teachers and students may submit questions by email/fax to [istructe.caribbean@gmail.com](mailto:istructe.caribbean@gmail.com) or **622-2093**. The deadline for submissions of questions is January 18<sup>th</sup>, 2017. Responses will be sent to all schools.