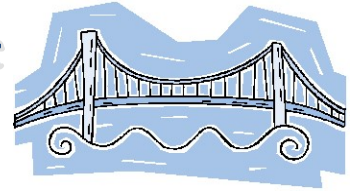
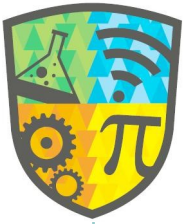


Who can build the strongest bridge?



Design Your Own Bridge



You are part of a team of engineers who have been given the challenge to design a bridge out of linguini and glue.

Bridges must be able to hold a specific weight. The bridge must span at least 40 cm in length because when it has been constructed, it will be placed between two chairs so it is at least 50 cm above the floor for a weight bearing test.

In addition to meeting the structural and weight bearing requirements, the bridge will be judged on its aesthetics as well, so be creative!

You are encouraged to use the fewest linguini possible to achieve your goal.

1. Planning stage

Meet as a team and discuss the problem you need to solve.

Then develop and agree on a design for your bridge. You'll need to determine how many materials you will use and the steps you will take in the manufacturing process.

Think about what patterns might be the strongest...but you are also being judged on the aesthetics of your bridge! Draw your design and present it to your colleagues. You may choose to revise your teams' plan after you receive feedback from class.

2. Construction phase

Build your bridge. During construction you may decide you need additional materials or that your design needs to change. If so, make a new sketch and revise your materials list.

4. Aesthetic Vote

Each student will cast a vote about the look of each bridge. The scale is 1 - 5 -- (1: not at all appealing; 2: not appealing; 3: neutral/average; 4: somewhat appealing; 5: very appealing). This number is averaged to generate a score for each bridge. This score is not based on how well the bridge might hold weight, but on how it looks.

5. Testing phase

Each team will test their bridge to see if it can withstand the required weight for at least one full minute. Be sure to watch the tests of the other teams and observe how their different designs worked.

6. Evaluation phase

1. Did you succeed in creating a bridge that held the required weight for a full minute? If not, why did it fail?
2. Did you decide to revise your original design while in the construction phase? Why?
3. How many linguini did you end up using? Did this differ from your plan? Why?
4. What was the average aesthetic score for your bridge? How did this compare to the other bridges? What design elements of other bridges did you like the best?
5. Do you think that engineers have to adapt their original plans during the construction of systems or products? Why might they?
6. If you had to do it all over again, how would your planned design change? Why?
7. What designs or methods do you thought worked well?
8. Do you think you would have been able to complete this project easier if you were working alone?
9. What sort of trade-offs do you think engineers make between functionality, safety, and aesthetics when building a real bridge?



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