**EV3 Bridge Building Challenge**

**Engineers build and design structures.** If an engineer wants to get hired (and paid!) for a job, that engineer needs to be able to work within a set timeline and deliver a quality product. Engineers must understand what the materials needed for the job will cost them in order to make a “bid” on jobs that they want, and make sure that they get paid enough to cover the materials that they will use. However, the businesses and organizations that hire engineers do not want to spend more than is necessary. Therefore, they tend to hire the lowest “bidder” who is able to meet their project demands.

Your task is to build a suspension-design bridge that spans the length of your kit (long way), using only the non-electric, non-gear parts from one EV3 kit. Your bridge must be able to support a full container of BB’s in the center.

In your Engineering Journal, drawing a sketch of your bridge design idea. DO NOT BUILD ANYTHING BEFORE DRAWING THIS! Make notes in your journal as you build and your design evolves. When you are finished, make a drawing of the final product. The final drawing should be detailed enough that if you had to build your bridge again, you could replicate it.

You will also track the cost to build your bridge using the “Bridge Building Budget” Google Sheet. The group that can build the most inexpensive bridge that meets all of the requirements will have the lowest “bid” and therefore will get the job - and will receive one extra credit point!

**Bridge Building Challenge Grading Rubric**

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| **Requirement** | **Points Possible** |
| Initial and final sketch and daily notes in Engineering Journals documenting tests and changes you made based on these tests | 4 |
| Bridge spans kit (long way) | 2 |
| Bridge has suspension design (only contacts kit at ends) | 2 |
| Materials include only non-electric, non-gear parts from one kit | 2 |
| Supports a container of BBs in the center | 2 |
| Parts tracked in Budget Spreadsheet | 3 |
| Group had lowest cost to build the bridge | +1 |
| **TOTAL POINTS** | **14** |