Principles of Manufacturing: Building Bridges.

Bridge, structure that spans horizontally between supports, whose function is to carry vertical loads. The prototypical bridge is quite simple—two supports holding up a beam—yet the engineering problems that must be overcome even in this simple form are inherent in every bridge: the supports must be strong enough to hold the structure up, and the span between supports must be strong enough to carry the loads. Spans are generally made as short as possible; long spans are justified where good foundations are limited—for example, over estuaries with deep water.

The students at Harrison Bay Future Ready Center in groups of two, first choose a bridge design of their own interest, then sketch it out as a rough draft of the bridge. Next, they convert their design to graph paper and use accurate metric measurements. Thirdly, they build the bridge using Balsa wood and glue. Both teammates are responsible for participating in the design and building of the bridge.