

Building The Bridge!

Important tip: Always have angles and bolts on connectors pointing out.

1. Place (4) dowels on the floor, flat side down.
2. Remove wingnuts.

You'll notice that the rest of the pieces have been **color coded**. That will help you keep things organized as you work on both sides of the bridge.



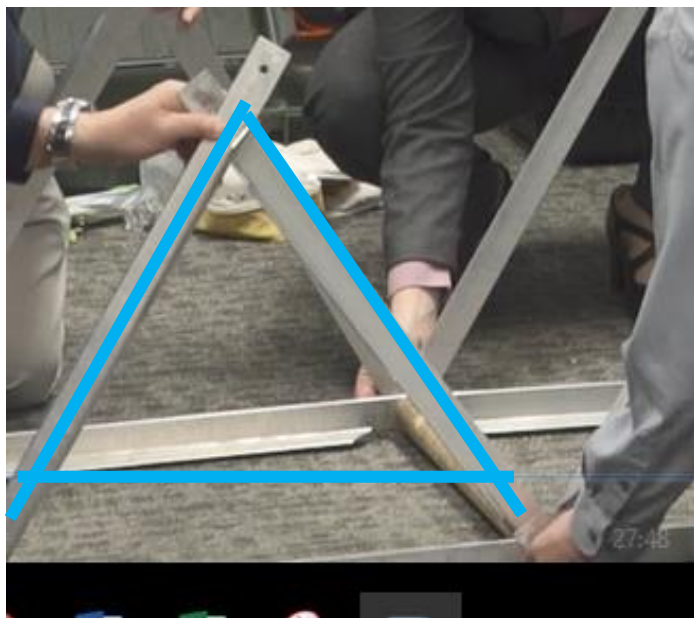
3. Attach 3 struts to each side to create a ladder.
(6 struts total)

(Note: The edges are facing in. Do not replace wingnuts yet.)

Both sides work together to give strength, stability, and rigidity. An angle is rigid in two directions. Let's compare this to a ruler. Bending one way gives flexibility, but nothing will budge when you try to bend the other way.



4. Attach 12 struts (6 on each side) to create triangles, 3 on each side. Be careful not to let strut guillotine and pinch fingers. (Edges facing out.)

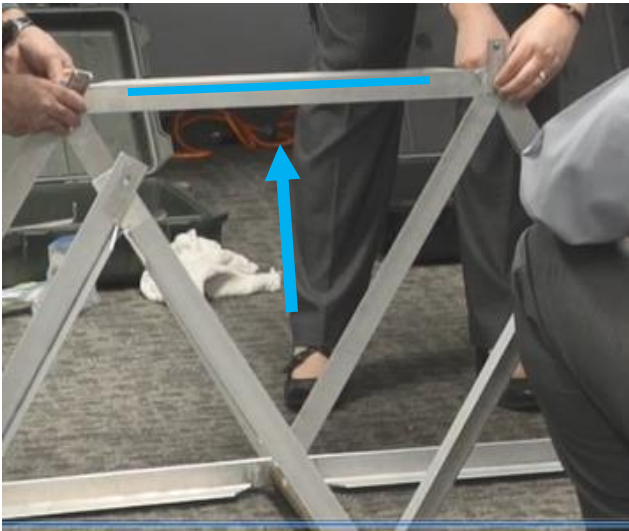


5. Replace wingnuts on the **bottom** of the wooden dowels.



HINT: Use the big screws for the supports and side trusses. Use the little screw for the top bar.

6. Attach 4 top struts (2 on each side) to complete two upside-down triangles.



(edges facing out, flat edge on top)

7. Use (6) connectors. Use the bottom bolt and wingnut on the connector.



8. For even more stability, attach (3) stringers/cross bars using the small bolts/wingnuts on the connectors from step 4.

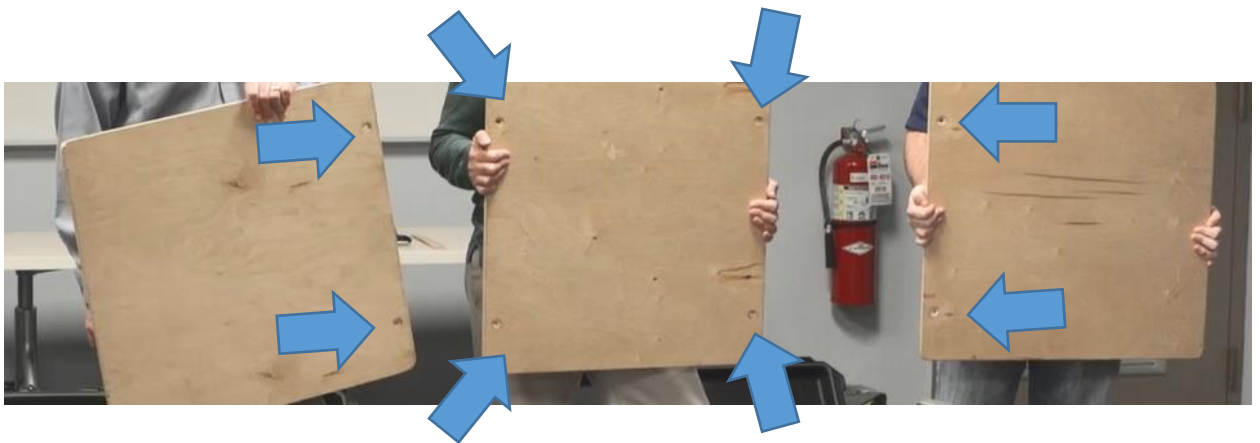


9. Explain washers to the students, they help with stability by supplying more surface area.

We are almost finished. But our Bridge won't work very well without a road bed.

10. Assemble (3) deck boards.

Make sure the holes will line up before the students begin building. This is easier to build upside down. Bolts will be sticking up through the holes.



Use 6 connectors and 4 carriage bolts and washer and wingnuts per connector.

11. Flip the deck over and insert from one end. Connectors/Bolts for deck should straddle the wood dowels to anchor the deck in place.



12. A few students can serve as Quality Control and make sure all of the wingnuts are tight.
13. Lift the bridge onto 4 chairs or a few desks.



14. Students can crawl across the bridge for great photo ops. The bridge shouldn't go anywhere, but it's always a good idea to have someone stationed on the ends, just in case.

After everyone has had a turn please carefully help take the bridge apart and pack it away.