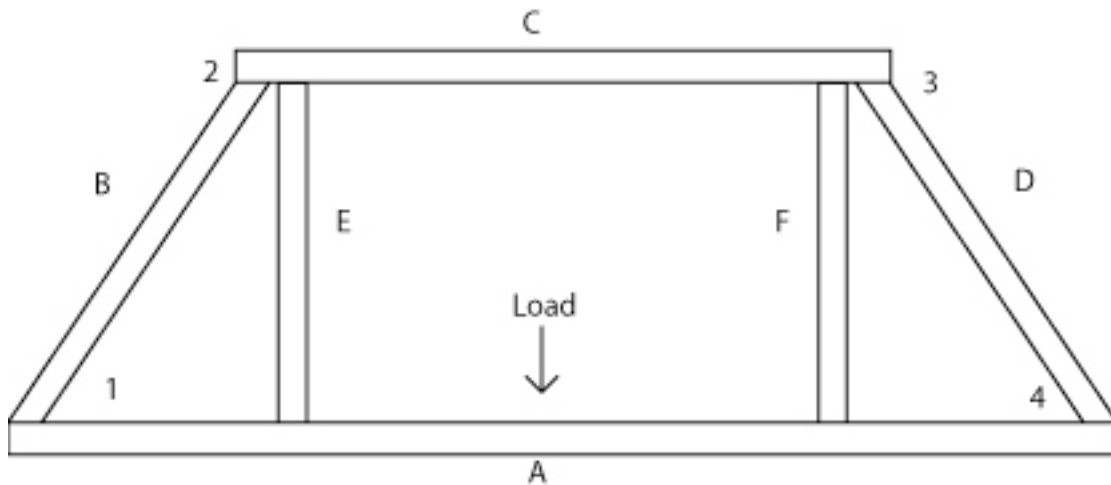


Lab Activity: Truss Construction

Purpose: To successfully build a simple truss out of Balsa wood and cyanoacrylate glue. To learn joining techniques and develop proficiency with woodworking techniques.

Method:

1. We will build the simple truss shown below:



2. Design Considerations:

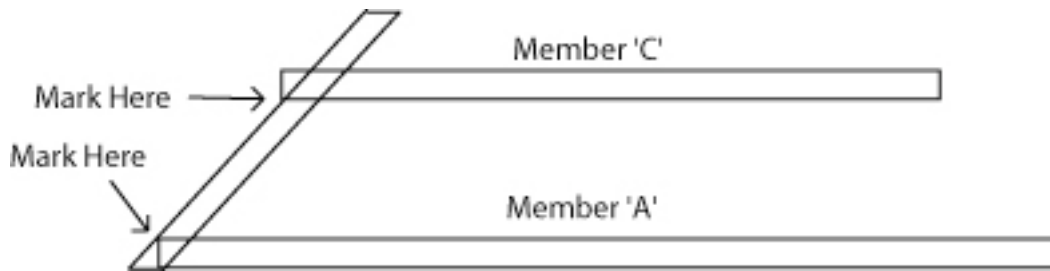
Note: As the load is applied to construction member 'A' the ends of this board will bow up and push members 'B' and 'D' up towards 'C'. The joints '2' and '3' will be greatly stressed and tend to lift 'C' off of the truss. Use gussets to reinforce these and other joints.

3. Truss Construction:

1. Obtain a two-foot strip of balsa. Cut a 16 cm and an 8 cm length of Balsa from this strip. Use a rocking motion to **carefully** cut these pieces.
2. Pin (using provided pins) these cut pieces to the lines on the back side of this sheet. Pin the pieces such such that the top edge of the wood is just under the printed line.
3. Now, use the cut to fit method to produce member 'B'

SEE NEXT SIDE

a. Lay a piece of balsa longer than 'B' on the top of the pinned member 'C' as indicated



b. With a sharp pencil, mark the cross stick exactly where the bottom edge of member 'C' crosses the cross stick (see diagram).

c. Without moving the cross stick, mark the cross stick at the point where it exactly crosses member 'A'

d. Use the razor blades to cut the cross stick exactly over your pencil lines.

Now, the remaining piece **should** fit exactly into the space making flush contact with the horizontal member.

i. RULE NUMBER ONE: ALWAYS CUT A LITTLE LONG RATHER THAN A LITTLE SHORT. YOU CAN ALWAYS SAND A BIT OF Balsa OFF, BUT IT IS EXCEEDINGLY DIFFICULT TO ADD Balsa BACK TO CUT PIECES

4. Cut members 'D', 'E' and 'F' to fit. Test each piece as you go along
5. Glue members together, making sure there is good, solid contact at each joint.
6. Use sand paper to plane your truss smooth, paying special attention to the joints.
7. Cut gussets to fit over the joints you want to reinforce. Be sure your gussets are placed in the correct direction!
