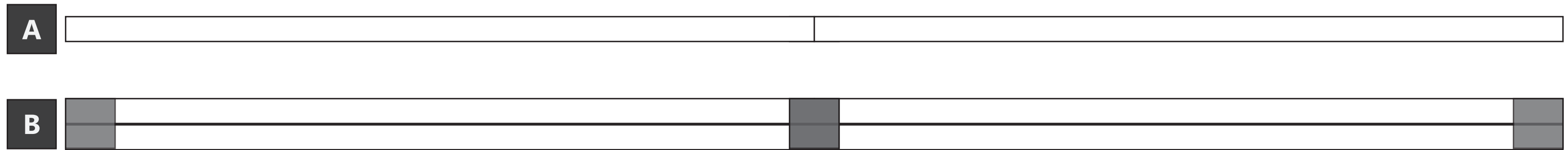


# Ultimate Bridge Builder Kit - Straw Bridge Schematic - Page 1

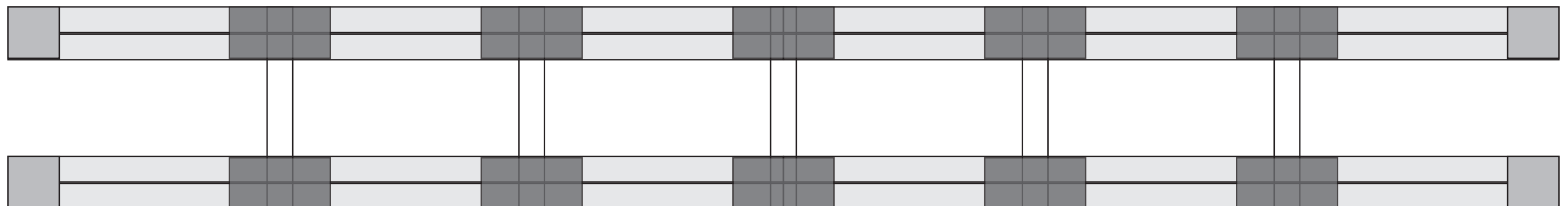
**1** **Bottom Chords.** Make two bottom chords, using 4 straws per chord. (A) Lay two straws end-to-end in the white placeholders below and tape them together with a piece of clear tape (shown by dark gray in the schematic). Use enough tape to wrap around the straws a few times. (B) Then lay two of the straw pairs you made in (A) next to each other in the white placeholders below and tape them together with three pieces of clear tape: one in the middle, and one on each end. Use enough tape to wrap around the straws a few times. Repeat to make the second bottom chord.



**2** **Cross-Supports.** Make 10 cross supports, by cutting 4 straws into 5 cm segments. You will get 3 segments from the first three straws, but you only need to cut 1 segment from the fourth straw.



**3** **Bridge Bottom.** Make one bridge bottom, using five 5 cm-long segments and the two bottom chords. Lay the two chords parallel to one another in the white placeholders below, and then lay five cross support segments across the chords. Tape the cross supports in place (gray represents tape in this schematic; dark gray is tape to be added in this step and light gray is tape added in earlier steps.).



# Ultimate Bridge Builder Kit - Straw Bridge Schematic - Page 2

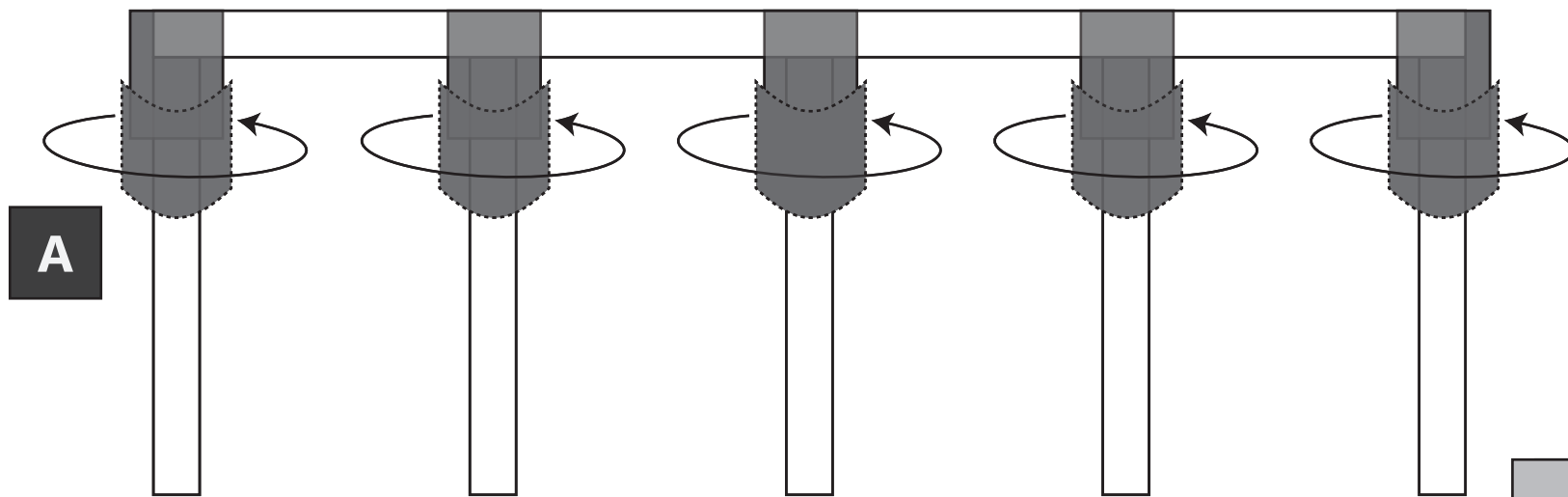
**4 Vertical Supports. Make 10 vertical supports,** by cutting 4 straws into 6 cm segments. You will get 3 segments from the first three straws, but you only need 1 segment from the fourth straw.



**5 Diagonal Supports. Make 12 diagonal supports** by cutting 6 straws into 6.5 cm segments with angled ends. You will get 2 segments per straw. Unlike the vertical supports in step 5, these diagonal supports have angled ends, as shown in the schematic below.

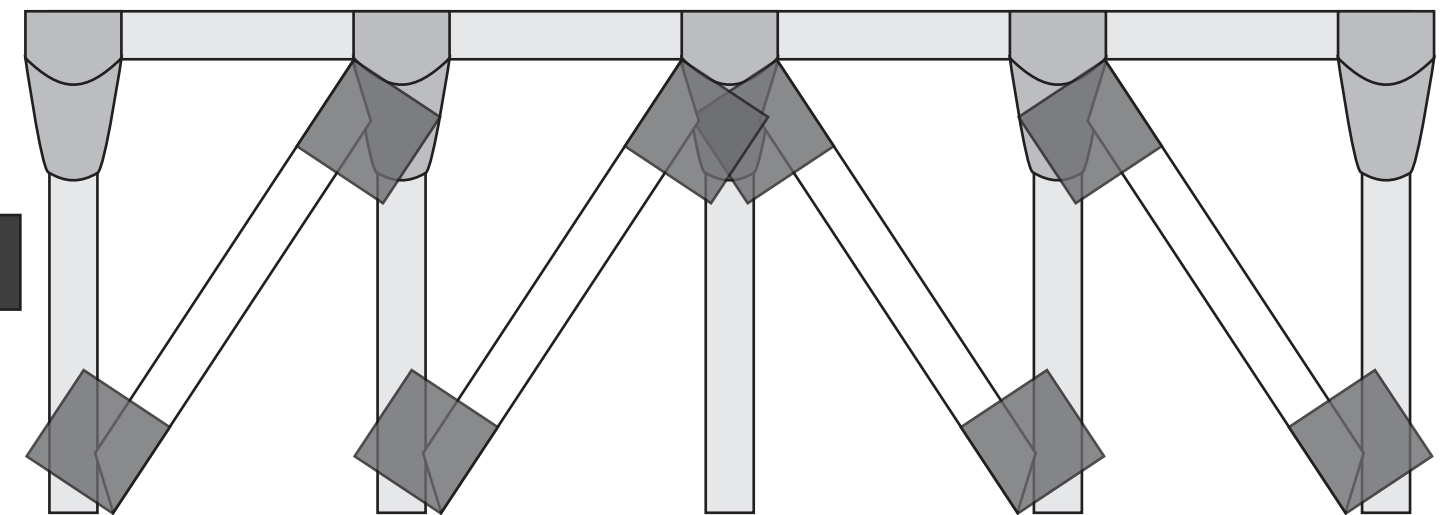


**6 Bridge Trusses. Make 2 trusses,** using the 10 vertical supports from step 5, 8 of the diagonal supports from step 6, and 2 new, uncut straws. Cut one of the new straws to a length of 18 cm, and lay five of the vertical supports below the straw, using the white placeholders in part A, below, to space them evenly. Tape the vertical supports in place using two pieces of tape: one piece to fold over the long straw and a second piece to wrap around the vertical support. See Figure \_\_\_ in the Project Idea to see how this is done. Then tape four of the diagonal supports as shown in part B, below. Repeat to make the second truss.



**A**

**Note:** You may need to adjust the lengths of the diagonal supports so that they fit nicely between the vertical supports. If they are too long, shorten the diagonal supports until they fit correctly.

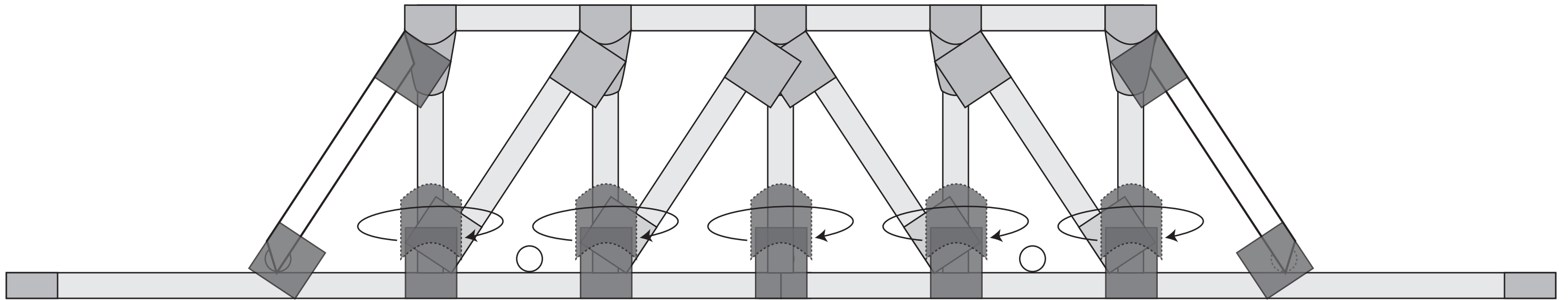


**B**

# Ultimate Bridge Builder Kit - Straw Bridge Schematic - Page 3

7

**Assemble Bridge Sides**, using the 2 trusses from step 7 and the 4 remaining diagonal supports step 6. Tape the truss to the bridge base, using the two-piece taping technique you used in step 7A. Add two more diagonal supports to complete the truss, as shown by the white placeholders, below. Repeat to make the second side.



8

**Add top cross supports**, using the 5 remaining cross supports from step 3. Lay the bridge bottom-down on the blueprint below (this is a **top-down** view) and tape the 5 cross supports to the sides of the bridge, as shown by the white placeholders, below. The cross supports go above each of the vertical supports.

