

Beyond Botball 2008

Construction Parts List

Shopping list:

- 4 – 2 x 4 studs (93" long)
- 3 – 2 x 4 x 10'
- 4 – 4 x 4 pieces of 3/4" particle board
- 3 – 4 x 8 sheets of 1/8" masonite (fiber board)
- 3 – 1 x 2 x 8'
- box of 2-1/2" screws (suggest decking screws)
- 3/4" hex head wood screws (14 needed)
- wood glue
- 5 – 10' lengths of schedule 40 1" PVC pipe
- 10 – PVC corners
- 2 – PVC T's
- 1 – PVC connector
- black duct tape
- black 3/4" plastic (electrician's) tape

Tools:

- power saw
- electric drill
 - 1/8" drill bit
 - 1/2" drill bit (or countersink)
- screw driver
- hex head bit plus extension
- tape measure
- pencil
- razor knife (for trimming tape)
- Also suggested:
 - PVC pipe cutter
 - clamps
 - square
 - straight edge
 - rubber mallet

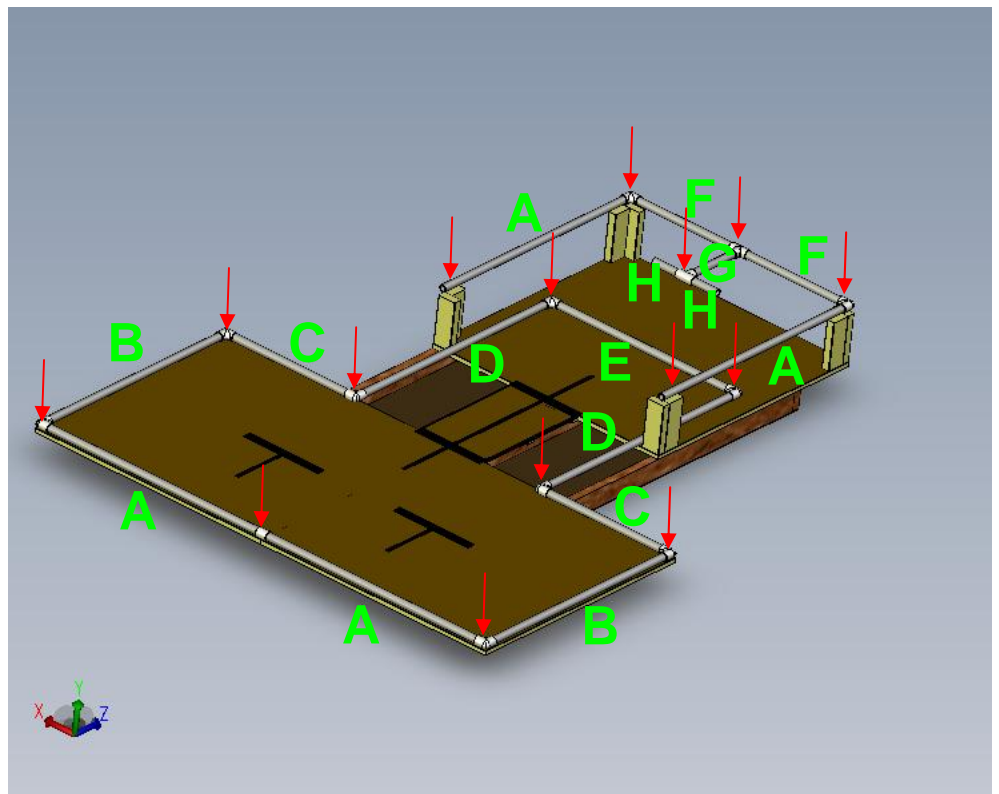
PVC is secured with screws at the points indicated (drill a 1/2" large access hole through upper PVC and a 1/8" pilot hole through lower) – secure with hex head screws

Cut parts:

- 4 – 93" 2 x 4 (for box frame)
- 2 – 48" 2 x 4 (box frame end caps)
- 8 – 9" 2 x 4 (for posts supporting upper level)
- 2 – 12.5" 2 x 4 (upper ramp support cleats)
- 3 – 14" 1 x 2 (bridge supports)
- 4 – 13" 1 x 2 (for ramp frames)
- 4 – 44.375" 1 x 2 (for ramp frames)
- 2 – 16" 1 x 2 (upper ramp supports)
- 4 – 4' x 4' 3/4" particle board (sub flooring)
- 1 – 4' x 8' masonite (lower floor)
- 2 – 4' x 4' masonite (cave floor, upper surface)
- 2 – 4' x 16" masonite (ramp surfaces)
- 1 – 2' x 14" masonite (bridge)

PVC pipe sections (16 in all)

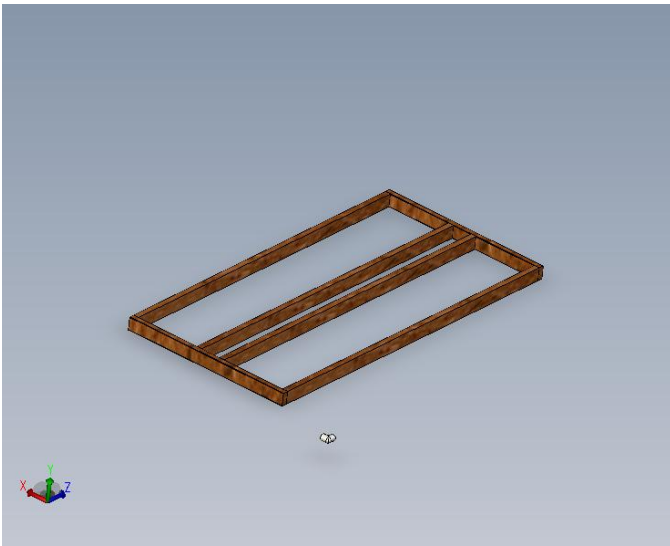
- 4 A – 46.5"
- 2 B – 45"
- 2 C – 26"
- 2 D – 48"
- 1 E – 38"
- 2 F – 21.75"
- 1 G – 12"
- 2 H – 6"



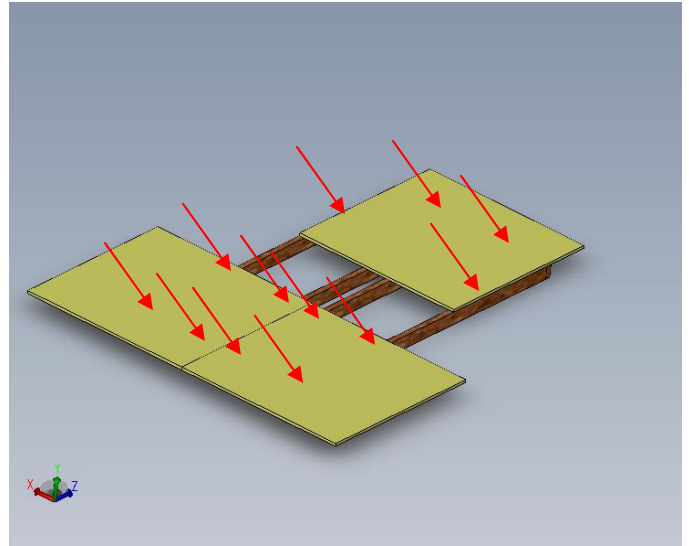
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Construction Steps

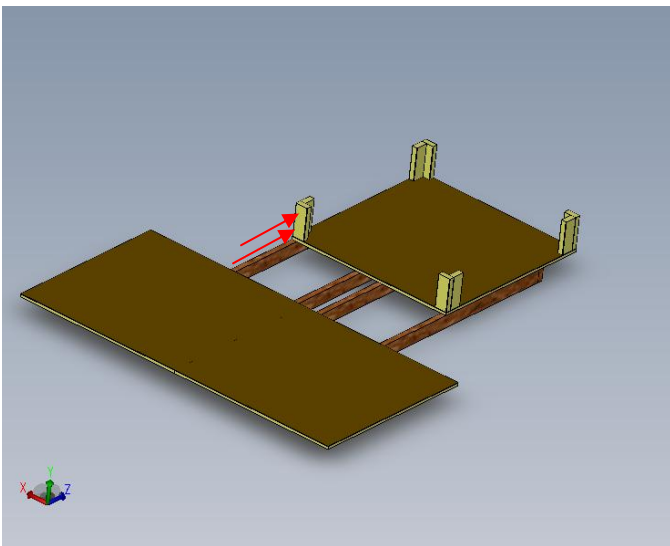
Step 1: Build box frame, secure 4' end caps to studs using 2-1/2" screws – suggest drilling pilot holes to prevent splitting



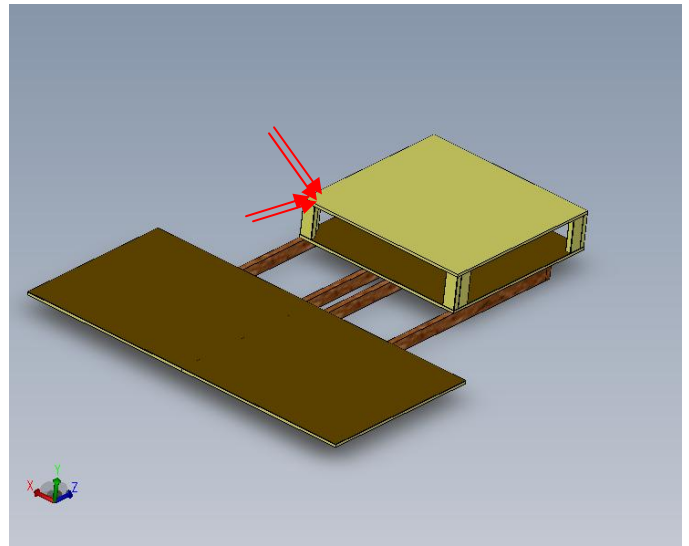
Step 2: Attach particle board subflooring – be sure to leave a 2' gap in the middle; arrows mark suggested screw points – predrill and countersink to minimize splitting and to be able to drive screw heads below subfloor surface



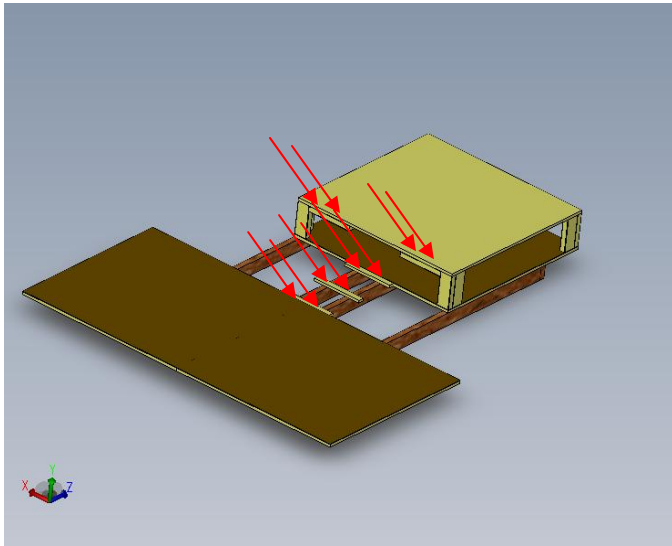
Step 3: Lay masonite in place, assemble support posts for upper level (2 screws each) and position them in place



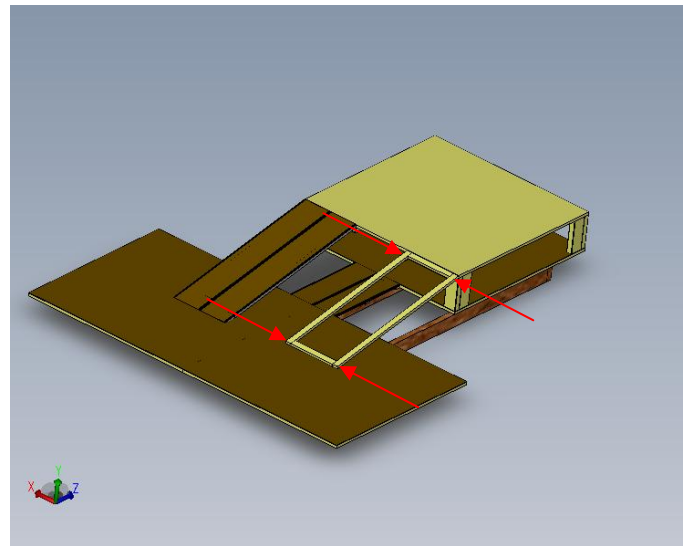
Step 4: Attach particle board subflooring to support posts as indicated (4 screws each, repeat for each corner). Same suggestions pertain regarding predrilling and countersinking.



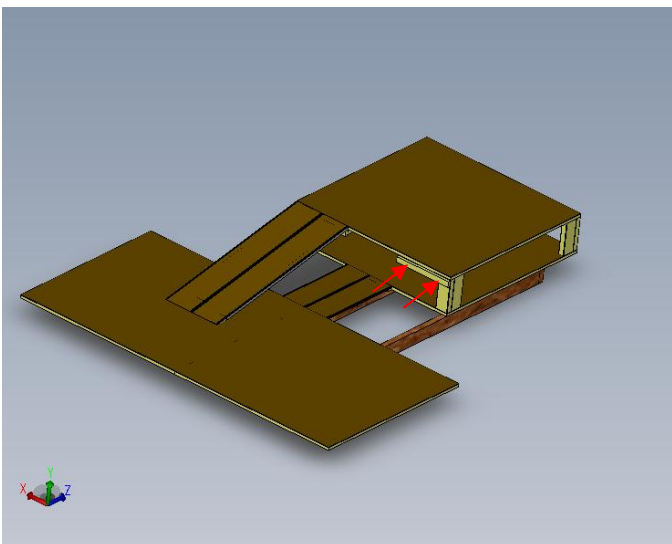
Step 5: Attach ramp support cleats to upper deck and install bridge supports. Suggest using a clamp to hold each cleat in position.



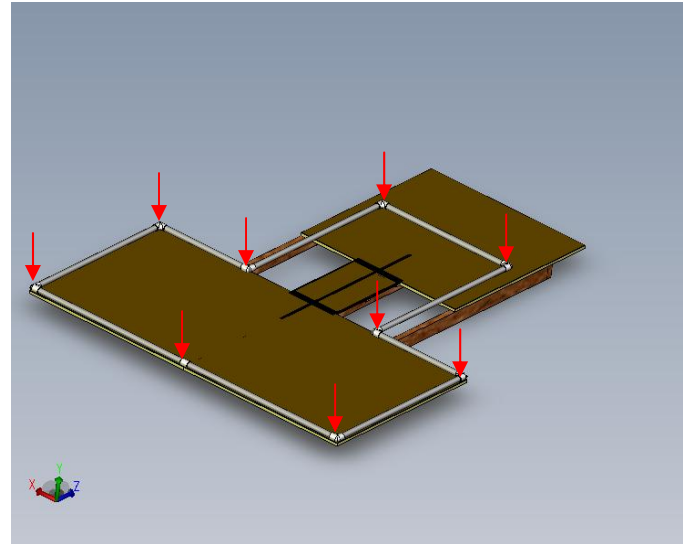
Step 6: Using 3/4" black plastic tape, tape the side edges of the bridge and ramp surfaces to form 3/8" side lines (i.e., the tape is wrapped to cover the cut edge of the masonite with 3/8" extending onto the surface). Add center lines to each. Frame the ramps; suggest gluing ramp surface to frame, clamp, then add screws for extra stability.



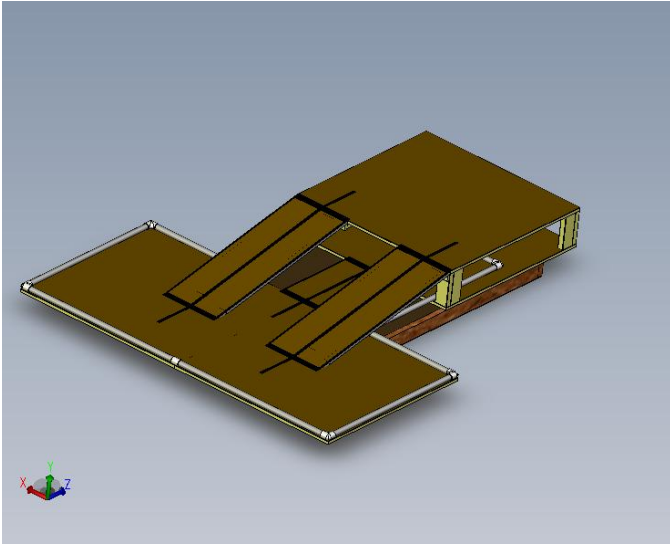
Step 7: Install the ramp support for each ramp. First put the surface for the upper deck in place and then position the support to get a smooth transition onto the ramp. Suggest using a clamp to hold the support in this position, then drill pilot holes, countersink, and install screws.



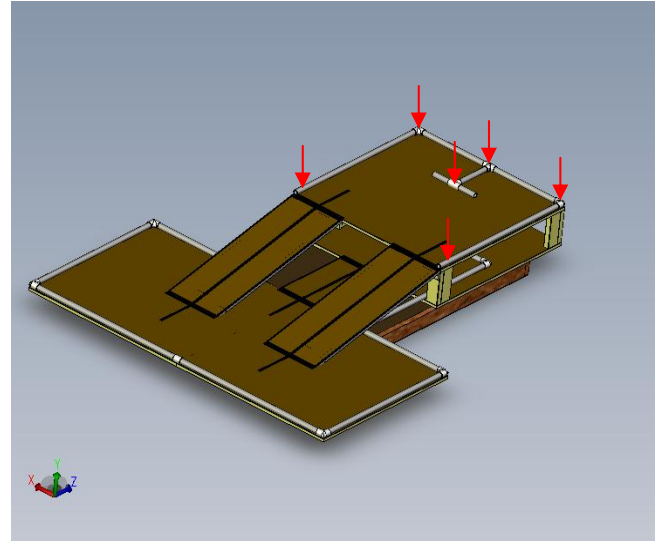
Step 8: Temporarily set aside upper deck and ramps. Install lower deck PVC, prepared as indicated earlier. Use black duct tape to secure bridge on each end, then use 3/4" black plastic tape to add 12" lead-in/lead-out lines on each end which extend the bridge's center line



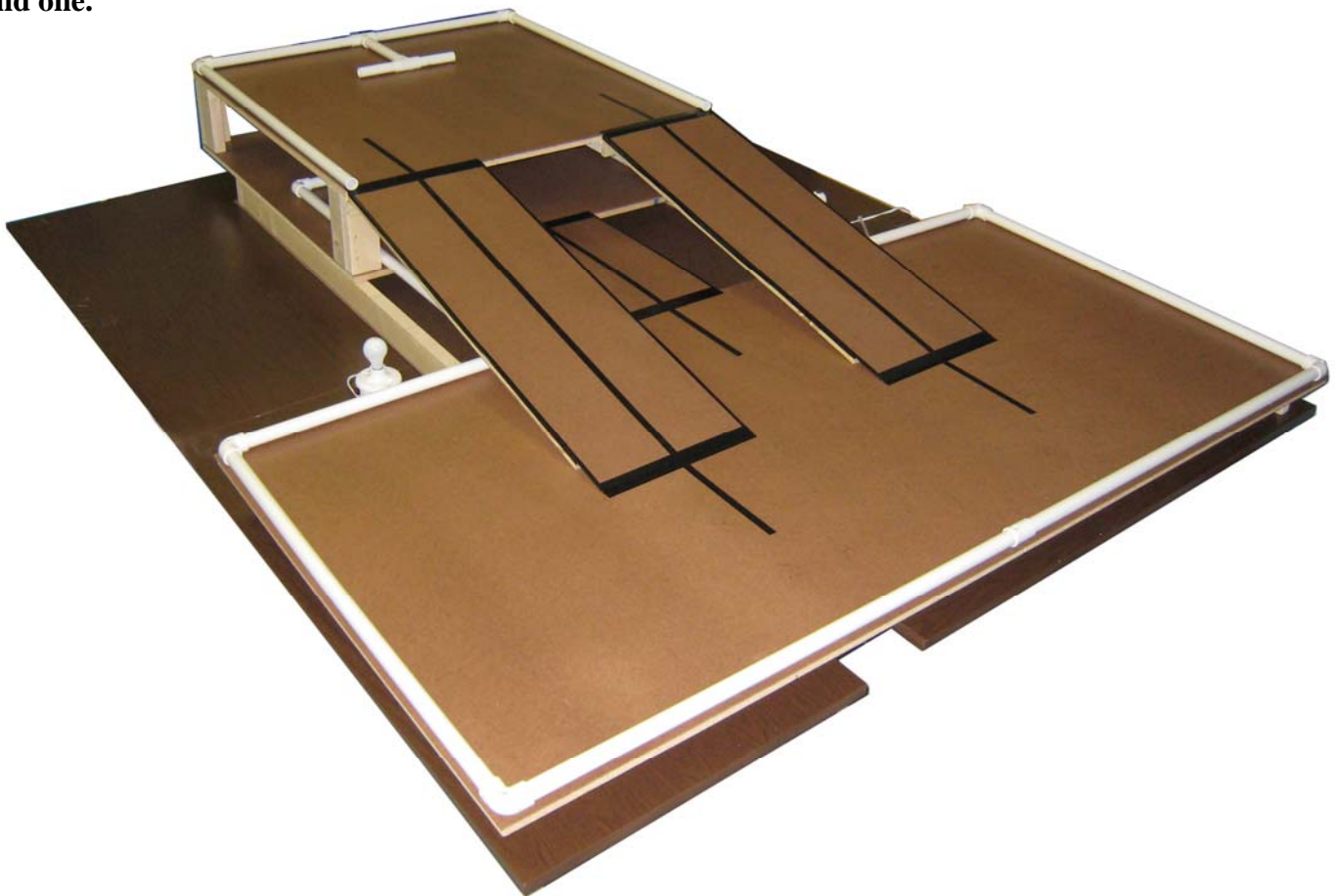
Step 9: Put upper deck back in place (with masonite surface) and attach ramps at each end using duct tape as shown. Using 3/4" black plastic tape install 12" lead-in/lead-out lines extending the center line for each ramp.



Step 10: Install the upper level PVC to conclude the construction.

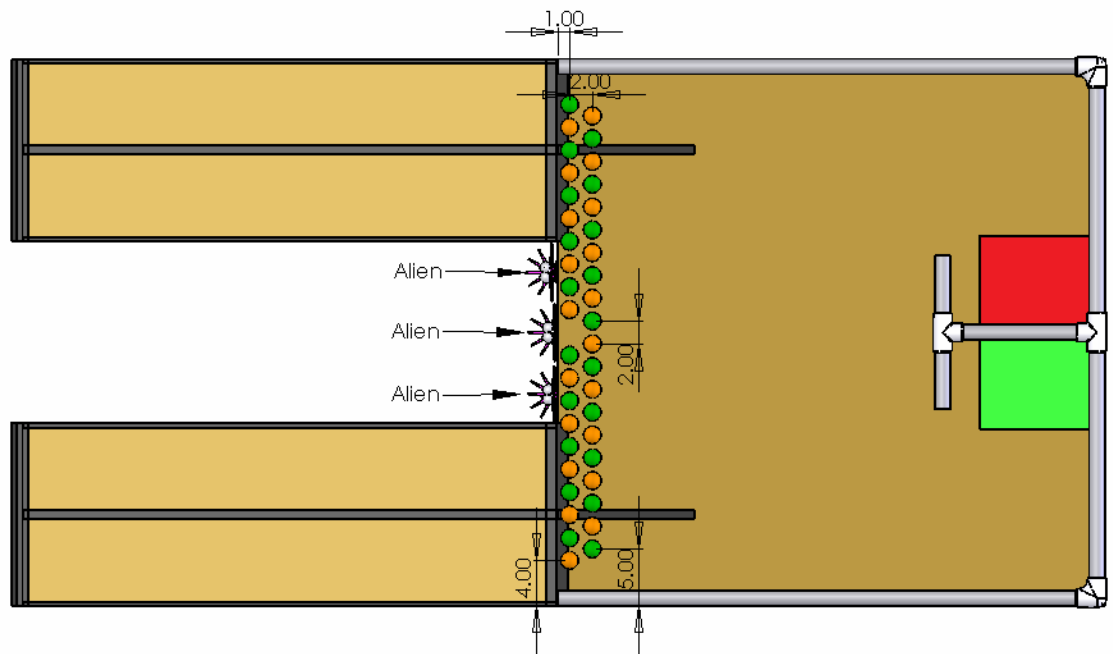
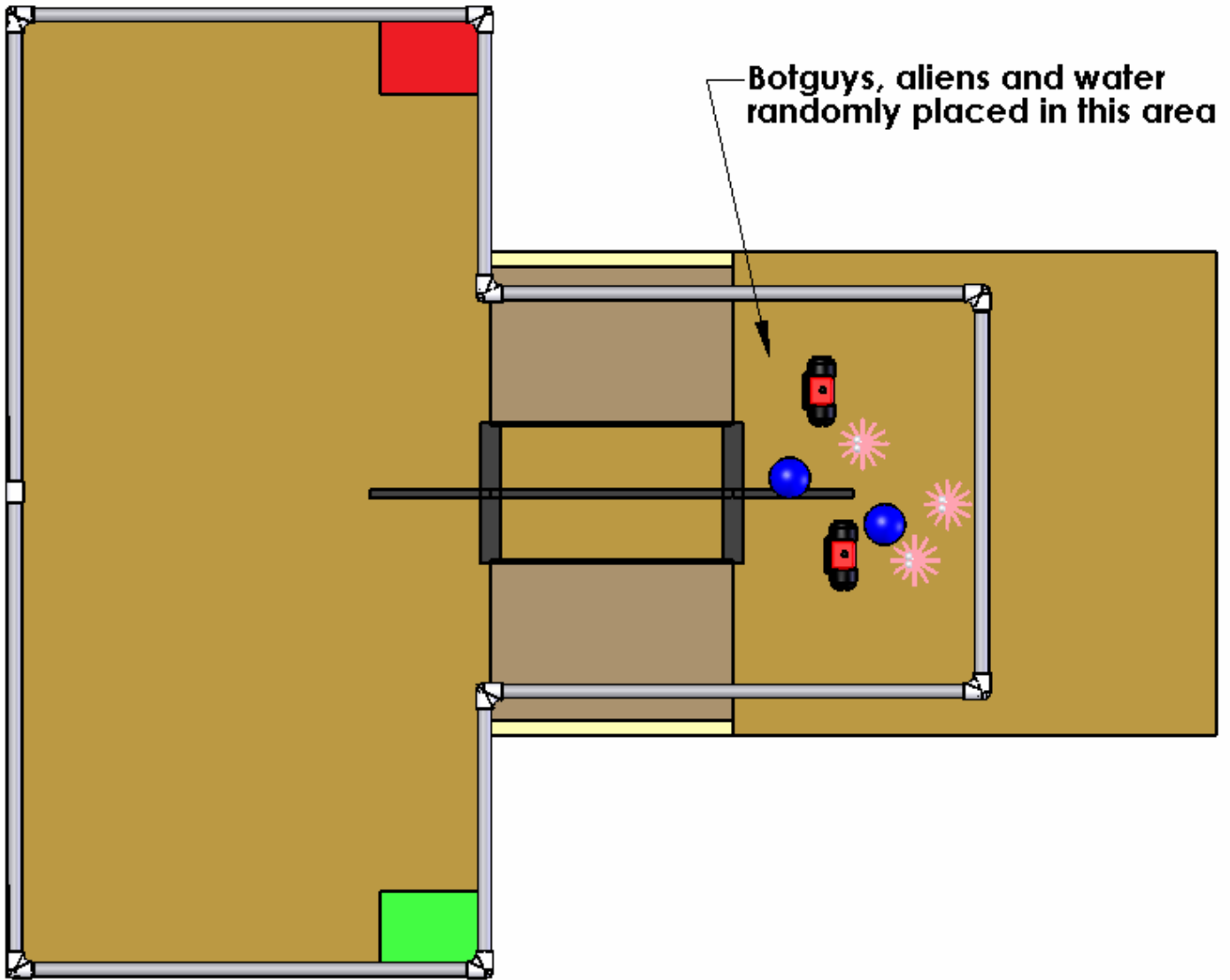


And yes, we actually used these directions to build one.



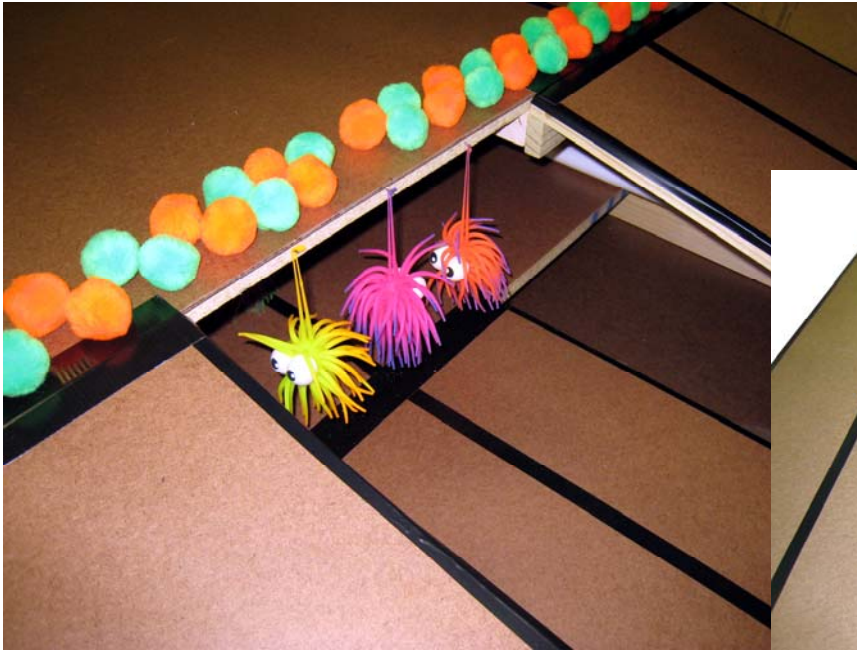
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Game Element Placement

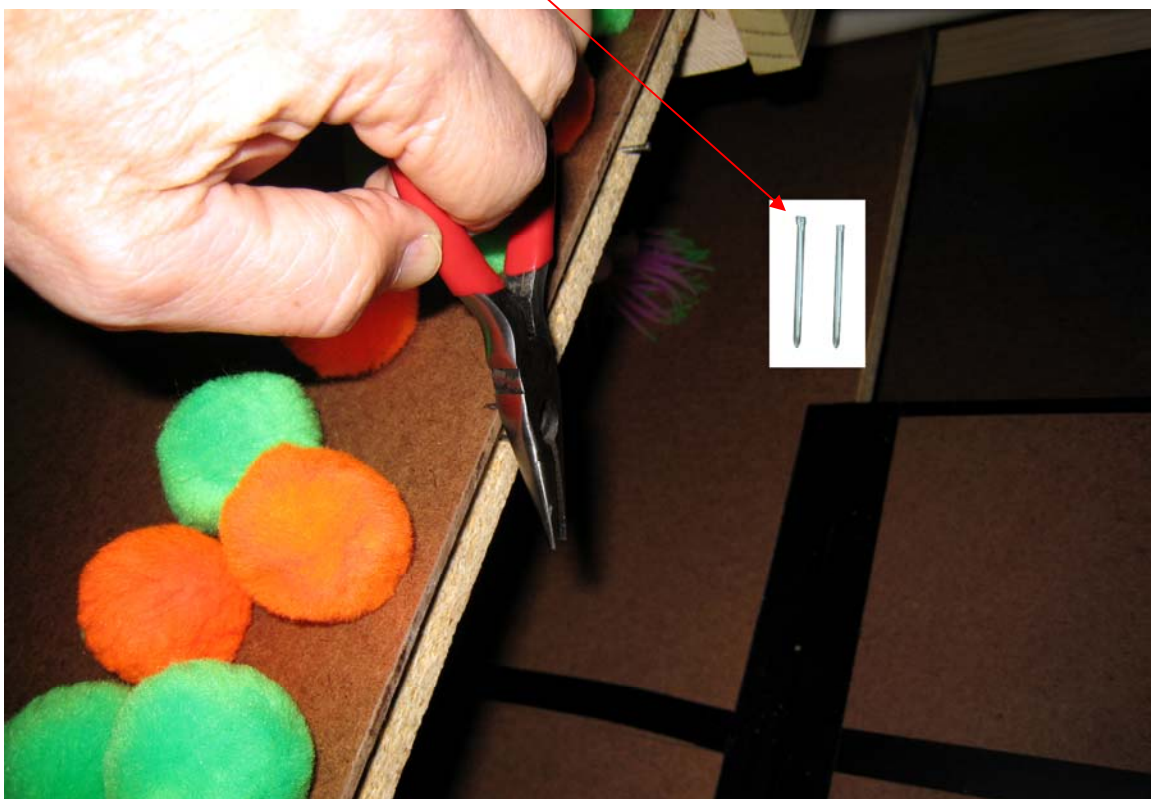


Aliens Guarding the Cave

Aliens hang from 1-1/4" finishing nails evenly spaced across the mouth of the cave (nails are 4" apart) – alien colors are random and they are likely to be moving or spinning on their hanger loops.



Drive in nails and clip off nail heads to leave a peg of about 1/4"



To place orange and green poms on the board make a jig from leftovers:

22" piece of 1x2

11 1-1/4" finishing nails

1. Hammer in the nails 2" apart (1" gap on each end):



2. Use to position poms in groups of 10:

