

Space Tube Parts List

Tube Body: Center glue straw (glide socket) to center of mass of tube. Attach fins at rear.

- Cardboard tubes: ~12"x1.5" \$0.19 per 100 + \$9 ship www.papermart.com
- 3 small/medium paper clips \$?.?? Staples
- Styrofoam Fins \$0.00 Lunch Trays
- 1, straw to fit Glide assembly \$0.01

Tube Prop Assembly: Take mounting block, drill 2 holes, 1 center 1 ~1/2" off center. Cut 2 slots equidistant from center hole to engage paper tube. Insert propeller shaft from slotted side, thread bearing, thread propeller (backwards! it needs to push). Bend prop end over to engage propeller

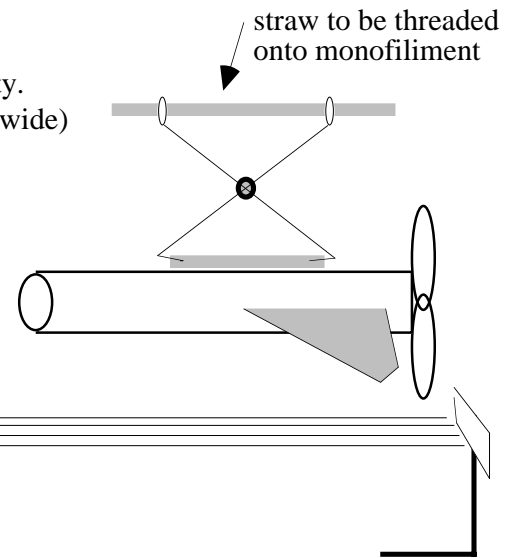
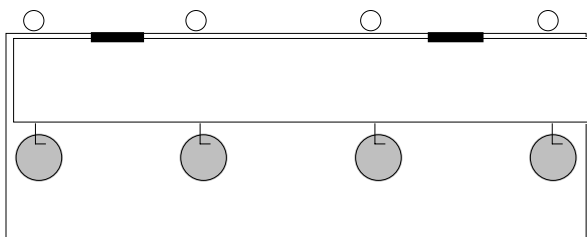
- 1, prop shaft, Peck-Polymer #pa045 #3, 3/64 x 2.5", 8 count \$1.35 Modeler's Junction
- 1, 6" propeller, Guillows #118, 3 count \$1.59 Modeler's Junction
- 3 rubber bands 7", Stockwel #383318, 24 count \$1.78 Staples
- 1 Bearing 3/64 hole Craft bead \$0.05 Wal-Mart
- 1 propeller mounting block 1/4x1/4x2" wood, \$0.00 Home-made

Tube "Glide" Assembly (as many as are lanes): Thread long prop shaft "eyelets" onto straw. Position approximately 4-5" apart. Cross props midway, wire and solder in position. Bend shaft ends inward so that they will firmly engage the straw attached to the tube.

- 2, long prop shafts Peck-Polymer #pa046 #4, 3/64 x 6", 4 count \$1.35 Modeler's Junction
- 1, straw \$0.01

Tube multi-Rail Assembly (4 gate): Assemble 2 L-style start/end pylons approximately 4-5' high. Across the top of both place crosspiece wide enough to accommodate 4 tube bodies (with fins) next to each other without interfering. Screw eyelets to top of crossboard at these positions. On one pylon, measure how low the tube rockets will hang when attached to glide assembly. Use a hole cutter to cut holes at these positions to match opening of hanging tube. Use hinges to attach another crossboard with 4 downward oriented L-hooks to be centered on the holes. This is the starting block. When the propellers are wound up, 1 of the large unbent paper clips is inserted into the offset hole to "hold the prop". The tube rocket is then mounted on the glider assembly, backed into position with the large paper clip hook end poking through the hole. The paper clip hook is engaged with the L-hook. Do this for the other 3 tubes. When ready to race, pivot the L-hook bracket which will pull all the paper clips out of the propeller blocks allowing the tube rockets to begin their journey.

- 250 yards 30lb test monofilament
- Wood of choice for large L-Bracket style start and end pylons. 12" wide for stability.
- Wood of choice for cross bracket start and end "monofilament rail" supports. (2-3' wide)
- 8 screw eyes
- 2 hinges
- 4 threaded L-hooks
- 4 large paper clips, unbent except for inside bend



Tube Assembly

Pick three styrofoam fins

- 2 Use the glue stick to “tack” the fins to the tube body where you want them. Avoid placing the fins too far back on the tube or they will get in the way of winding the propeller.
- 3 Carefully go to the “hot glue station”, there your fins will be hot glued on for strength.
- 4 Back at your table use elmers glue and place a fillet of glue on each side of each fin where it is attached to the tube. Let dry

Get your power source:

- 1 Propeller assembly
- 3 rubber bands
- 3 small paper clips (dont loose em)

Assemble your Space Tube (have your den parents help)

- 1 Hook the 3 rubber bands to the propeller shaft
- 2 Unbend the small end of the paper clips (only 1 unbend per clip is necessary) until you have a hook at both ends
- 3 Hook the three loose ends of the rubber bands to the “crochet hook”
- 4 Drop the “crochet hook” through the rear of the tube, with the rubber bands.
- 5 Pull and grab the rubber bands.
- 6 Hook each rubber band to small hook of the paper clip and the large hook over the end of the tube.front.
- 7 Position the propeller block so the slots engage the tube wall and the offset hole is up, ie toward the top of the tube which is where the straw is glued on.

Winding up

- 1 Get on of the “Holding Pins” from the official at the starting gate.
- 2 Hold the front of the tube in your left hand.
- 3 Wind the propeller with your right hand “toward your face” or anti-clockwise.
50 - 75 turns should do it.
- 4 Insert the holding pin in that extra hole you were wondering about.

Racing

Wait your turn at the starting gate.

Watch em go!

