BIG Puppet

Refer to diagrams when following these instructions.

The Puppet

Frame Pack

The frame pack must fit well and have working shoulder and hip straps / buckles. Ideally, the pack has padded shoulder straps and padded hip straps. With the pack firmly strapped on, have a partner grab the frame and try to shift it side-to-side and up and down. Adjust so that as little movement occurs while partner tests fit and snugness.

Remove canvas / nylon bag(s) so that only the frame and straps remain. Adjust horizontal tension strap (usually an open mesh) if the pack has one. Stuff a small, lumbar pillow between this strap and the support rod to add padding. The pillow also tips the pack backward so that the puppet spine is less likely to lean forward and cause back discomfort and assures there is enough room between puppeteer's head and puppet spine to allow full head motion.

Check and re-check the structural integrity of your frame before each use. The puppet's support rod (spine) must sit firmly in the "cradle" created by the slanted cut in the 1" PVC pipe. Check this for wear or damage.

Attaching Support Rod to Frame Pack

The support rod connects the puppet's spine to your frame pack. This rod is attached with hose clamps to the frame pack. Tighten securely and check each time puppet is worn. The height of the support rod should allow hips of puppet to easily clear puppeteer's head.

You may use foam, pipe insulation to pad the support rod.

Cutting & Gluing Pipe

Measure twice, cut once!. Be sure to mark the length with pencil or permanent felt marker. Check measurements, again. Cutting: use PVC hand cutters or a saw designed to cut PVC. De-burr cut ends.

Test Before Gluing

Gluing is permanent. Therefore it is essential to test puppet dimensions, clearances, visibility, etc. before gluing up the joints. Test at regular intervals. Friction-tight joints will come apart, just hook them together and keep testing.

Overall Height

If your puppet is to be in parades or used outdoors in public places you must keep the overall height shorter than low-hanging wires and branches. For safety, this should be less than 12 feet.

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[inspired by Michael Curry's Big Puppets]

Spine There are several options for the puppet spine.

Low-budget: 1⁄2" schedule 40 PVC pipe. This is stiffer than the thin-walled used in the rest of the skeleton but still rather flexible. Use PVC primer before gluing.

High-budget: ~1" carbon-fiber rod. Superior stiffness and significantly lighter than schedule 40. However, it is fragile (can break with side load) and must be handled carefully.

Regardless of material used, the spine must fit inside the support rod that attached to the frame pack.

Long Bones Most plumbing used in home construction is schedule 40 PVC pipe. Underground, irrigation pipe is thin-wall PVC. Compared to schedule 40, thin-wall is much lighter and yields just as much strength to the long bones of the skeleton.

Leg Length When testing, go with longer dimension. You can always shorten pipe.

Measure height of puppet hips to floor. Add ~6" (upper / lower leg) to this length to determine sum of puppet leg length.

Knee Joints Our knee joints are custom-made from two sizes of T-joints. This joint is built so that not only is side-to-side movement restricted, but that the knee cannot hyper-extend.. A bungy joint would not work well at this location because the knees would be prone to crossing in front of the puppeteer.

If you would like to order a pair, contact us at:
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Bungy Joints Works well for shoulder, elbow, wrist and ankle joints. We recommend that you make one pair of replacement joints on your own.

The bungy joint consists of two end caps, a length of 1⁄4" shock cord (bungy); a length of clear, 5⁄16" (ID) plastic tubing. Bore end caps with 1⁄4" bit. Assemble as shown in diagram.

Do not paint insides of end caps nor the ends of pipe to which they will be attached.

For easy disassembly, determine which end caps will be glued to pipe and which will simply be held in place by friction. Mark glued ends with an X. Test puppet thoroughly before proceeding to gluing.

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Hip Joints

Each hip joint is custom-made from a T-joint. Movement is limited to rotation around the hip "bone." The inner dimension of the T-joint is milled so that it slides on and off the hip, and kept from migrating off the pipe with an end cap. Do not paint the inside of the T-joint nor the surface of the hip where the T-joint is in contact. Lubricate this joint with petroleum jelly as needed.

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Arm Extensions

The poles you use to control the hands and arms need to be long enough to get the motion you desire but not so long as to be uncontrollable. For an adult, 7'–8' works well. The pole should be smooth so that you can choke up on it quickly for ground-level interactions and return to normal position, too.

Surf-type fishing poles made of carbon-fiber work very well. These poles are lightweight but remain stiff out at the end. Regular fiberglass fishing poles are not as stiff at the end and thus are more difficult to control.

Ferrule works but may not be able to take the stresses put upon it. At some point, acquire a back-up pole.

Carbon-fiber poles are fragile and need to be treated with care. A less expensive option is bamboo.

Shoe Attachment

See diagram.

We still don't have an ideal solution for this. The puppet's attachment to the shoe needs to be very, very secure. All puppeteer foot movement is transferred to the puppet's legs via this attachment.

The puppeteer also needs this attachment to be comfortable to wear. The attachment needs to be such that easy on / off is taken into account. If not, then an extra pair of shoes must be available for the puppeteer.

Ultimately, the perfect shoe attachment will affix securely to well-fitted shoes of the puppeteer, be comfortable, and easily removed and put on.

Painting Skeleton

The puppet skeleton is plastic. Use paints designed for painting plastic. Omit painting if you plan to clothe or cover most of the puppet skeleton. You need only paint the exposed areas where you don't want the white color of the pipe to show.

Be very careful not to get paint on articulating or friction joints.

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Adding Bulk (muscles)

There are several factors to consider. Foremost, adding bulk will add weight to your puppet. Second, adding bulk may obscure the puppeteer's vision. Third, adding bulk may interfere with the range of articulation. Fourth, adding bulk will create more wind resistance. On the other hand, adding bulk makes your puppet more life-like.

There are several options available:

- Nylon mesh
- stretch fabric
- EVA foam
- backer rod
- foam noodles
- Styrofoam
- Magic scarves
- and more…

Keep in mind that sometimes less is more. A *hint* at being a banana, penguin, or moth is much better than trying to look exactly like the creature.

Attaching Covering (skin)

See Adding Bulk.

Attach "skin" temporarily at first. Check that all aspects of the puppet still work. Take into consideration the possible need to change the art at sometime.

Hair or feathers

If your puppet must have hair or feathers, keep it lightweight.

Backer rod (from hardware stores) is very lightweight but paint will not stick to it. Backer rod comes in grey and beige. Boas (from craft or home decor stores) are lightweight and offer free animation. Boas are available in many colors.

Strips of plastic bags, attached to skeleton with spray adhesive can mimic feathers that flutter in the wind.

Hands

Must be lightweight. From 3/8" to 1" foam sheets cut hand-shaped hand with three to five fingers. Select appropriate colors or paint with made-for-plastics paint.

Hands Attachment

Attachment of hands to poles with clear, plastic tubing and elastic cord, allows movement which mimics hand rotation. Clear tubing allows solid attachment but is removable if necessary. The elastic cord allows flexibility.

Hot-glue end of arm extension in hand after making a secure fit. Hot-glue end of half bungy to arm extension. See Diagram.

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