Chell, Portal costume notes

I've gotten a large number of people contacting me about this costume and how I made it etc, so here you go, this is a pretty detailed description of what I did to make it, any other questions I would also be happy to answer, but this should probably cover most everything.

Jumpsuit materials

- 4 yards orange cotton duck fabric (JoAnne fabrics)
- 3 packages white piping (Joanne fabrics)
- 18'' grey invisible zipper (JoAnne fabrics)
- Heavy duty snaps and snap setters (JoAnne fabrics)
- White silk screening ink
- Mud, dust, tea, wood shavings etc.

Leg braces materials

- Old skis (local recycling center)
- Cabinet door hinges
- Extra thick craft foam, paper mache, mod podge, paint etc.
- DUCT TAPE

Portal Gun materials

- Polystyrene insulation foam
- plumbing pipe
- fiberglass resin
- paper mache
- craft foam
- wire
- cabinet door handle
- Jell-O

Process

First off, have portal for the PC, if you don't then ask if you can use a friend's machine for this. Download Source SDK over steam and open up the model viewer, this gives you all the information you need to know about the costume and all the props. Take screenshots of kea areas if you're using someone else's computer to do this, and remember; to make a good costume you need to make some assumptions about materials etc. like you obviously don't want to use orange fleece for this or cotton quilting material. I picked the orange duck because it is very similar to what prison uniforms are made of, and it turned out to take the ageing very well too.

Jumpsuit

I made a pattern for myself for the jumpsuit based on the model viewer, and since valve is amazing, it was pretty easy to see where the seams are, if you follow those pretty closely then it WILL fit like it's supposed to. The trickiest part of this was the pants portion of it, for that I picked a pair of pants that I already owned and copied them into a pattern, which could be altered to fit as part of the suit pattern.

This is a quick sketch I did of the basic pattern, just to give an idea.

I don't really have an idea of how hard this is, it was pretty easy for me, but since I am self taught I can't really give an idea as to what level you would need to be, I would recommend getting some help if you have never made pants before though, because those are pretty tricky.

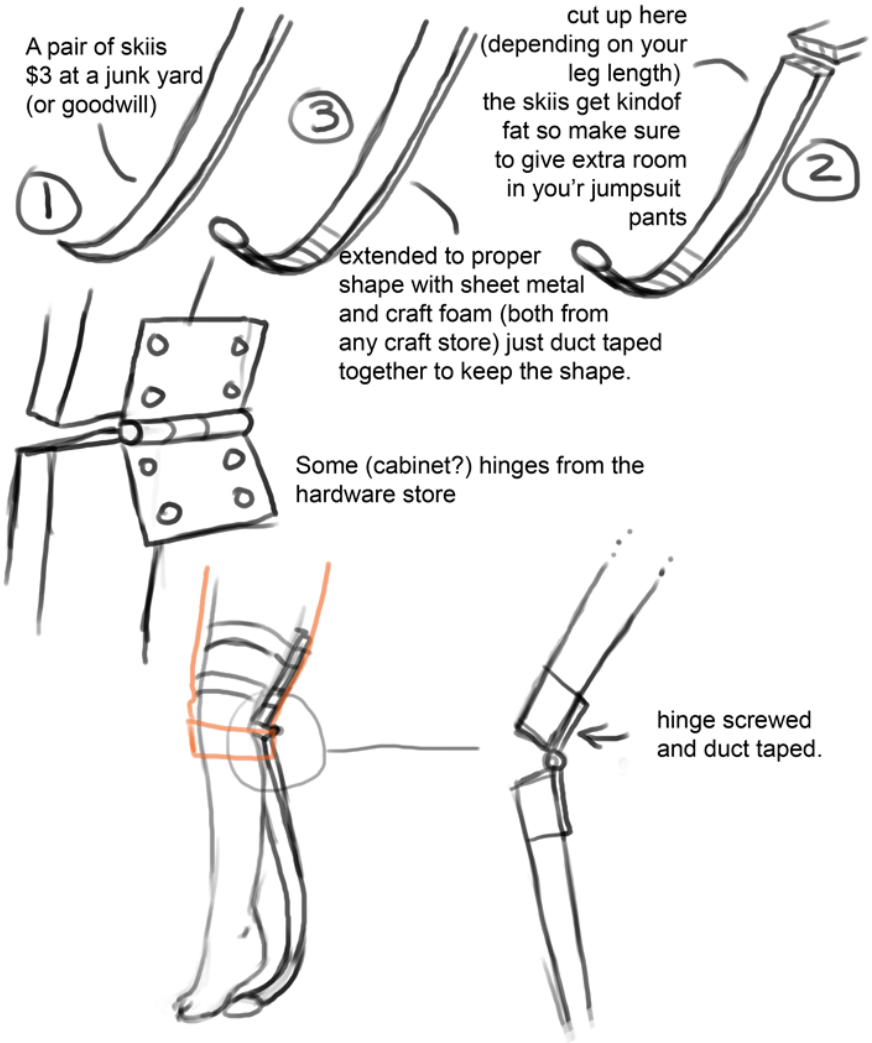
After you finish that the most important thing comes next, AGEING I made it out of bright orange material, but when I was done (although it doesn't show up well in any of the photos) it got muddied and stained and torn to perfection. This is also where the model viewer is most important, there are holes in both the knees and faded patches all over. I used many techniques to get this done. I took the belt off of my dad's belt sander and rubbed it all over the suit, this made it dirty AND worn at the same time, I also took it out into the driveway (a dry gravel road would work even better) and stomped on it and scraped it around. Finally I cut little nicks in the knees and roughed them up to the right size, don't just cut holes, wear them in. and added finishing touches (like the darkening around the sleeves) with a mud/water mixture and a paintbrush, and white paint for the lighter areas as well as around the tears etc.

For the logo on the back I taped off the area and painted it with silk screening ink.

The leg braces

These were nearly impossible to figure out, and ended up working great using an act of desperation only a couple days before I needed them. I found a pair of super skinny skis at a local recycling center called bring, the tips are cut off and hinged where the back of my knee would be and the upper segment of ski is literally duct taped to my legs underneath my pants.

I think an illustration can show it best.



The top white part that fits around the top of your calf is made of several layers of extra thick craft foam layered together with hot glue, there is somewhat of an art to sculpting the stuff with some heavy duty scissors so it might take a bit of practice to get it to work. That was covered in paper mache and several layers of mod podge before being painted. It was pretty much just duct taped to the back of the brace, it really just got in the way as far as wear ability, but it looked right.

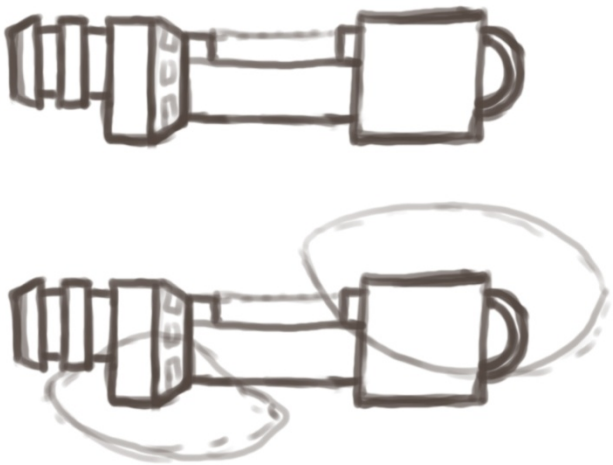
Also, DO NOT EXPECT THESE TO BE COMFORTABLE, my legs did not bend right for several days after walking on tip toes for two days strait.

The Portal Gun

Wow, this was ridiculous to make…. Though I think it was worth it. There was a lot of experimenting involved and trying to patch up when things went wrong (too often)

The main barrel of it is literally just a piece of pipe I bought at home depot, with another pipe joint for increasing the size of your pipe… I'm not sure what any of this is called (not a plumbing connoisseur) but you can see pretty easily when you're looking at it whether it looks right.

The two white shell things are made of polystyrene insulation foam, also from home depot, I layered it together with hot glue and then sculpted out the shapes with a hot wire cutter, a razor blade and lots of high grit sandpaper (if the sandpaper is lower than about 60 then it will just tear up the surface. I then coated them in mod podge (see a pattern?) and mixed up some fiberglass resin. At this point I wish someone would have told me that resin dissolves polystyrene so here you go RESIN DISSOLVES POLYSTYRENE! Don't apply it directly to the surface; the parts that were layered thicker with mod podge did not melt away so I suspect that if I had been a bit more liberal with that application that there wouldn't have been a problem. You might want to do some test chunks to see how the various materials react with each other.

The grabby prong things on the front are made of layered craft foam, stiffened with wire, and hot glued into place, the very tip of the gun is a cardboard tube that was once a salt container, but you could also use another piece of plumbing of the right size.

The entire barrel was also layered with craft foam to make the transitions the right size, like so.