WildRice Halloween!

http://www.wildrice.com/Halloween/Construction/BouncingBucky/

Build your own

Bouncing Bucky Skull

by Chuck Rice

The Anatomical Chart Company sells skeletal models to the Scientific and Medical communities. They have very nice skeletons and skulls, but they tend to be very expensive. Fortunately for Hauntists, it is difficult to make quality skeletons and there are many that come out of the molds that are not medical or even teaching quality. ACC calls these Forth Quality or Fourths. They generally have some flaw or flaws that make them unusable for teaching, but perfect for Halloween. ACC sells these for greatly reduced prices to the Haunted House market. To order, call Marilyn Lack at 1-800-621-7500 ext 235. (The Halloween Desk)

I purchased some of the rejected Budget Bucky Skulls ($5) and came up with this amazingly simple mechanism for making the skull animate. It uses 2 small springs to balance the skull on a pivot and the slightest movement of the neck causes the skull to move in the same way that the Hula Girl in the back of a '57 Chevy moves. A tiny shake to the neck (less than a quarter inch) will cause the mouth to snap open and shut, and a slower movement, not much larger causes the head to nod up and down 2-3 inches. The same small shake in the side direction will make the head wobble back and forth about a half inch or so. And if the head is allowed to swing free in the supporting pole, tilting it a tiny amount will cause the head to turn in that direction.

The Jaw

Here is Buckys jaw mechanism. It works much like a real human skull. The muscle that normally would hold the jaw in place is replaced here with a spring. Note that there is no hinge, so if the spring is removed, the jaw falls off.

The first thing we will need to do is put a pin in the jaw to use as a hinge.

The Bucky skulls are made of a white plastic that is very easy to drill and tool. For the drill, I used a .08 inch drill bit but the size is not critical. It needs to be bigger than the pin we will be using later on so that the pin is very loose and can easily move so the jaw can swing free.

I drilled into the jaw bone at a 45 degree angle and then through to the skull. The picture shows the position of the hole.

For the pin, I used piano wire. You can get it at any hardware store or hobby shop that sells model airplanes. I used .055 inch wire, but most any small size would do.

I started by bending a loop in the end of the wire. This gives the wire a bit of spring and gives a way to adjust the length of the pin if need be (by making the loop larger or smaller).

Then I inserted the pin from the inside and out through the holes I drilled in the jaw. I bent the end and cut it off with a Dremel cut-off wheel. Once both pins were in place, I removed the springs that held the jaw in place and just allowed it to swing free on the pin-hinges.

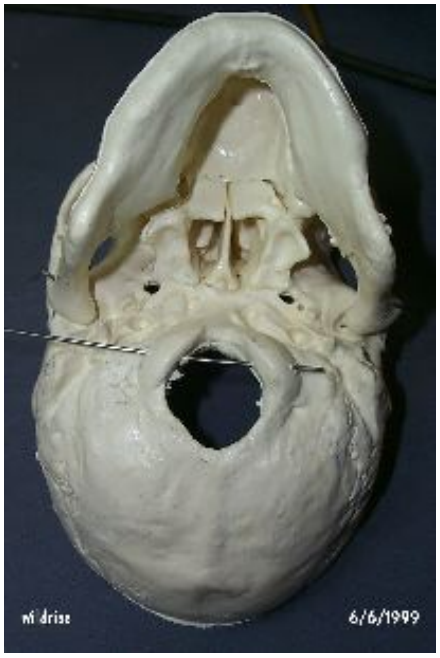
This shows the pins from the inside of the skull. To tighten or loosen the pins, you can just bend the loops in or out. Loose is better.

The Neck

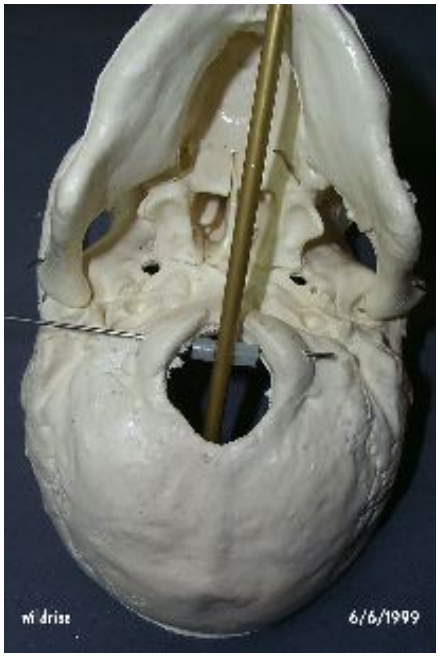
For the neck, I used a 5 inch piece of 0.19 inch inner diameter, 0.22 outer diameter Brass Tubing. You can get the brass tubing at the hardware or hobby shop, normally next to the piano wire.

I drilled a hole 2.25 inches from one end of the tube using the same drill bit as before. It is hard to get the drill started in the tube, so I used a pair of wire cutters to make a little ding in the tube. You could also use a nail an tap it lightly with a hammer. You just want to make a small indent so the drill will not walk off the side of the round tube. Then drill through both sides.

Next, drill through the bumps in neck hole (as shown). My drill bit was not quite long enough so I had to mount it in the drill as far out of the chuck as I could to make it as long as possible. Do this on both sides, as close to straight as you can, but if you are a bit off, it will not matter. The piano wire will bend a bit to go through both holes.



Next test fit a piece of piano wire and cut it (Dremel) so both ends stick out about a quarter of an inch. Later you will bend the ends down to hold it in place.



Next remove the piano wire and thread it back in through the neck shaft. use some kind of spacers to hold the shaft in the center. I used plastic standoffs (hardware store), but you can use washers or nuts or whatever you have on hand. Everything should still be loose and the neck shaft should wobble back and forth about a half inch and up and down several inches. Cut off the piano wire and bend both ends down to hold it in place.

At this point, if you pick up the skull by the neck shaft, the weight of the skull will cause it to flop forward so that it is looking at the ground, but you can lift it with your other hand and see the full range of movement.

To balance the neck, I added two springs (really one and a half). This picture shows the parts required to make the spring assembly. The larger screw and nut will fit into the end of the brass tube, so size them based on the tube size. The smaller screws will be cut off and screwed into the skull to anchor the ends of the springs.

The springs are from my junk drawer so I do not have exact numbers on them, but they are 2.25 inches long in the compressed state, and 0.175 inches in diameter and are made from 0.020 inch spring wire. I needed a long one and a short one, so I just cut one in half and bent a few turns down to make a new end loop

Assemble the springs and screws as shown. Do not tighten the nut against the springs. It is used to adjust the tension and moment arm of the neck shaft.

Drill a hole at the front and back of the skull at the furthest points that are practicable. Drill straight down as shown in the picture for the best holding power.

Then insert the spring assembly by screwing in both spring ends and slip the middle screw into the brass tube. If the head still tilts a bit too far forward when you hold it by the neck shaft, you may need to stretch the back spring a bit to make it longer. Remember to test the balance with the cap on, since the balance will be different with it in place.

The hardware store sells something I call threaded lamp rod. This is used in lamps to attach the lamp parts together and is interesting because it has a hollow core that is used to thread the lamp wire through. In our case, we can use this to slide the brass tube inside, then attach the skull to a fence or body or whatever you fancy.

Here is the skull mounted on the lamp rod.

And a bigger picture.

Because we used the brass rod, you can also mount it on other things. Here is a skull mounted on a redwood walking stick. I just drilled a hole in the end big enough to hold the brass tube and shoved it in.

The Finishing Touches

There are many ways to finish the skull, and this is not my strong area. But I did come up with one way that looks pretty good. If you come up with others, I would love to get a picture in jpeg format and I will add it to these.

My method was simple and was suggested by someone on one of the Halloween mailing lists. I took Brown shoe polish and rubbed it in, the buffed it out with a shoe brush, just like I was polishing a shoe. The surface was still a bit tacky, so I added some baby powder and rubbed it in, the brushed and blew it off. The surface of the Skull took the polish at different rates in different areas and looks a lot like dried blood.

Then I added some white and black hair from a beauty shop in wispy strands. The picture shows a finished (without the hair) and unfinished Skull, next to a cheapo plastic one from Spencers Gifts. The ACC ones are very realistic.

I am still not sure what I will do with the eyes. I may add LEDs or I may put in real eyeballs. <grin>

Hope yours turn out as well as mine did!

Brown Shoe Polish and applicators. :)

Rub it on with the little yellow brush, then polish it back off with the big brown one.

Skull Polish in progress. The polish leaves a dirty look here. The more you use the brown brush, the cleaner and more leathery it looks. Take your pick.

Please note:

I can make no warranties on the methods and procedures presented here. I have built this device, but your tools and skills are unknown to me. Proceed at your own risk.

I also do not endorse any of the products here. They are just the products I chose to use for this project. You may find that they work better or worse for you. Experiment for yourself. That is half the fun!