

Pokéballs v 1.0

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Thank you for your interest in my Pokéball project! It's been a lot of fun over the past few years, and I'm finally ready to share it with the world.

If you'd like to support me as I continue this project and embark on new ones, a donation would be greatly appreciated!

<https://www.paypal.me/JohnBussellAU>

Components

Product links will direct you to results on eBay Australia that may have since expired. Searching the items on your country's Amazon or eBay sites should get you a closer, cheaper result.

STL files from Thingiverse (<https://www.thingiverse.com/thing:4193712>)

Sandpaper (80, 240, and 400 grit)

Air-drying spot putty

1x 16mm red LED latching push button switch (<https://www.ebay.com.au/itm/Aluminum-Metal-16mm-LED-Latching-Momentary-5V-12V-24V-220V-Push-Button-Switch/293321144559?var=592180109103>)

2x Circular neodymium magnets (<https://www.ebay.com.au/itm/N50-Neodymium-Rare-Earth-magnets-2mm-x-1mm-Free-Postage/133316112338>)

1x 3V battery (20mm diameter, any version that starts with CR20 should suffice)

1x 20mm battery holder (<https://www.ebay.com.au/itm/CR2025-CR2032-3V-Button-Coin-Cell-Battery-Socket-Holder-Box->

IMPORTANT: Make sure you use this exact style of battery holder, as this is what the holes in the Pokéball are aligned for!

1x paperclip

20 gauge electrical wire (<https://www.ebay.com.au/itm/10M-22-18-20-Gauge-AWG-Electrical-Cable-Wire-Tinned-Copper-Insulated-LED-Strip/174083073590>)



Soldering iron & solder

Superglue

Spray filler primer (grey)

Paints

Spray clear gloss coat

(Optional) airbrush kit

Printing

All pieces print with at 0.1mm resolution, 100% infill, with supports. Print the inner and outer shell pieces with the inside of each hemisphere facing upwards. Printing the outer shells facing down may make it hard to remove the supports and affect the end fit, while printing the inner shells facing down will affect how the interior of the Pokéball looks once completed.

All parts are designed to be printed on a FDM printer, and are designed with a tolerance to accomodate the slight inaccuracies the process has. If you print the files on a resin-based printer, you may notice these gaps.

Post-processing

After removing supports from all parts, use the 80 grit sandpaper to knock down the layer lines by sanding in small circular areas to ensure even coverage. Be careful around any corners, as sanding too rough can result in rounding the corners down. Keep in mind that the interior of the outer shells and most of the exterior of the outer shells will not need sanding as those surfaces won't be visible.

Once you've sanded down the layer lines, move onto the 240 grit sandpaper to even out the parts using the same circular motions. If you notice any deeper areas that sanding won't be able to smooth, use some filler primer to fill the gaps and sand it back once dry.

Using the 400 grit sandpaper, smooth the surface of the parts even more. Don't worry about getting it perfectly smooth, as a slightly rough surface will help the layers of paint adhere better.

Before painting, assemble the hinge by cutting a section from the paperclip slightly shorter than the full hinge width and slide it through both parts to hold them together.

Optionally, you can glue the hinge into place using superglue and paint the interior shell as a whole. This will ensure that the layers of paint won't prevent a clean fit at the end, but painting both the interior and exterior while assembled can be tough.

To assemble the interior shells, the larger hinge piece is glued into place on the top interior shell, then once dried the smaller piece is glued into place on the bottom interior shell. You can optionally use the spot putty to fill in the seam where the hinge meets the shells so that it looks like a single part!

Priming

Cover the parts with an even layer of filler primer. Once dry, inspect the parts to see if there are still any visible lines that you want to remove. If so, sand the area back down to the plastic and repeat the earlier sanding process to smooth the area, then use the primer again to see if the finish has improved.

Painting

I have been painting my Pokéballs with an airbrush so that I have greater control over the paints I can use while ensuring a smooth finish. If you choose this route, there are plenty of quality airbrushing tutorials online that will be able to teach you the basics far better than I will!

Any high quality acrylic paint will suffice, but I found that Citadel paints provide great results. For the classic Pokéball, I used "Evil Sunz Scarlet".

Once all the paint has dried, two coats of the clear gloss spray should protect the paint and give the Pokéball a nice shine.

Assembly

Before putting all the parts in place, the switch must first be correctly wired up. Once finished, the light will be on when the switch is pressed and off otherwise.

Using the wire, connect the terminal labelled "C" (or "C1") to the negative terminal. Then connect one wire to the terminal labelled "NO" (or "NO1") and another wire to the positive terminal. Test the connections by touching the wire from the positive terminal to the negative side of the battery, and the other wire to the positive side. If the light comes on while the button is pressed, it's time to assemble the Pokéball!

Glue the mirror pieces into place, as it will be easier without any wires in the way.

Glue the battery holder inside the top interior shell, with the flat edge facing to the left (so that the terminal on the flat edge goes through the hole closest to the edge on the shell's top).

Remove the nut and rubber ring from the switch, and screw it into place in the top shell. Once it's sitting flush, feed the wires through the nut and use it to secure the switch into place.

Hold the top shell with the switch facing upwards. Feed the wire attached to the positive terminal through the hole on the right, and the other wire through the hole on the left. Ensure everything is the right way around by inserting a battery into the holder (with the positive side being visible) and touching the wires to the terminals. If your switch lights up when pressed, attach the wires to the terminals. Optionally, you can use some superglue in the channels to help hold the wires in place.

If you haven't already, glue the hinge into place using the instructions from earlier.

Glue the magnets into the holes on the interior shells, making sure they're facing the correct way.

Finally, glue the exterior shells into place.

Congratulations, you now have your own Pokéball!

Disclaimer

The hinge mechanism is the weakest part of the Pokéball, and is also extremely difficult to replace after assembly. These Pokéballs should be treated more as props than toys, as if they're thrown or dropped onto a hard surface they can easily break.