

3D Print Finishing Guide

After you have printed a 3D model, you have a plenty of options to finish the model at BeAM. You can simply paint the print right after it is completed, but for a higher quality look, you can sand the print before painting. In this document we're going to outline how to finish your 3-D model. We'll cover multiple sanding techniques and painting options.



Learn how to:

- Remove support from your print
- Sand down printed ridges and marks from printed support material
- Sand down a print using power tools, like a Dremel
- Paint your print using acrylic paints

Removing Excess Material

To remove support material from your print, you will need the following supplies:

- Eye protection
- X-acto knife
- Wire snips
- Pliers

Safety: Wear eye protection throughout prepping and sanding your print to avoid an eye injury from projectiles of plastic.



To remove rafts and support material, BeAM provides flush cutters, pliers, tweezers, picks, and blades. These tools are not only useful for removing support but also when there are blips, noodling or other excess filament from the print. This process is fairly straight forward, you'll grab, twist, cut, snip, break off any parts of the print that don't belong. The main goal here is not to damage the print itself in the process.

Sanding



We're going to cover two options for sanding: sandpaper and a Dremel tool.

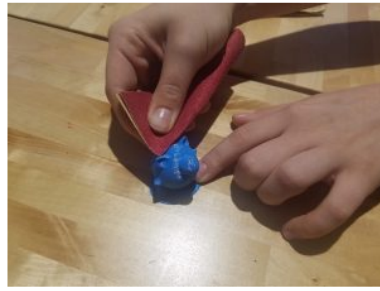
When sanding your print, gather the following supplies:

- Eye protection
- Sandpaper
- Dremel tool
- Dremel bits
- Sandpaper - grit: 80, 100, 200 and higher if preferred

Safety: When sanding, you may find that you want to wear a respiratory mask and latex gloves to prevent inhaling or getting plastic particles on skin. Staff will provide these for you per request.



Start with a coarse grit (low number) sandpaper. With this coarse sandpaper, your goal is to remove most of the material you need disposed. Try to avoid gauging or deeply scratching the print by keeping in mind that you'll refine the finish later with finer sandpaper. By the time you are done with the coarse grit sandpaper, it should be a uniform surface with few or no visible ridges. Crevices, curves and small parts can be difficult to sand. Try using smaller strips of sand paper. It may also be useful to brace the back of your sandpaper with another tool that matches the shape of the crevice; especially if the area you're sanding is smaller than your finger/hand.



When your surface is fairly smooth, select a higher grit sandpaper and resand the full surface. Each higher grit will remove less material and provide a smoother texture. The goal of finer sandpaper is to smooth out imperfections caused either by the printer or by the previous grit of sandpaper. Taking your time with this process is ideal to produce a surface that is completely even.



Whenever you feel (literally feel it) your print is smooth enough to move on, go ahead and get ready to paint! If you feel that it's still not smooth enough for your preferences, you can try the following:

Wet Sanding: This is where you will submerge the print in water, then pull the print out and sand it with 1000 grit sandpaper (we do not stock this, so you'll need to source your own sandpaper).



Fill and Sand: In this process, you'll use a filler to coat the model and fill in any holes or inconsistencies. Once the filler dries, you can resand the model. Repeat this process as much as needed. Tip: You can use acrylic paint as a filler!

Sanding with a Dremel



Select a sanding wheel for the Dremel. The wheels come in smaller and larger sizes and different grits. Just like with sand paper, you'll want to start with a coarser grit, and move to finer/higher grits.



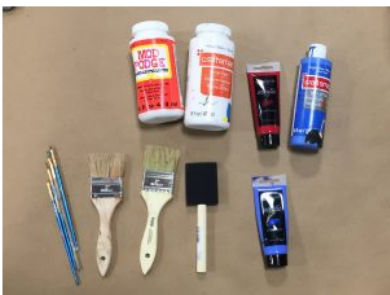
Place the metal rod extending from the sanding wheel into the Dremel's mouth. To seat the sanding wheel in the Dremel, pull back fully on the blue lever on the side of the Dremel while pushing in on the sanding wheel. Next, switch on the Dremel using the blue power switch. You can adjust the speed of the machine using the blue dial near the bottom of the Dremel.



Now you're ready to sand! Note: the Dremel tool spins in a direction, you'll want to place the side of the sanding wheel on the desired surface to be sanded so that the debris/projectiles are directed down and away from your face. Move the wheel back and forth in a slow, controlled, lateral motion. Use a light touch and be careful not to put too much pressure on the sanding wheel against the print. This can damage the print beyond repair or cause the tool to stop rotating properly. When you're satisfied with the results from a coarser grit, you can move to a finer grit drum. You might also need to switch between drum sizes to get to certain areas of your print. By nature, sanding produces a large amount of dust and particulate matter. To remove this from your print, put some rubbing alcohol (isopropyl alcohol) on a paper towel, and wipe down the print.

Tip: You can leave some of sanded residue on the model if you're planning to paint, they may act as filler.

Painting



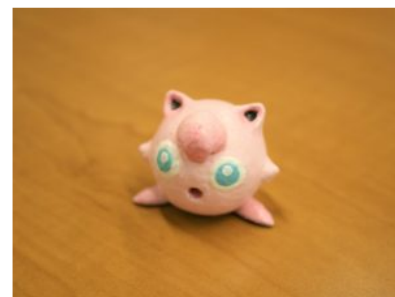
The BeAM Arts & Crafts bin contains painting supplies we offer, but you can purchase your own supplies and bring them into our space to work. You'll need the following to get started:

- Acrylic paint
- Paint brushes (both foam and brush tipped)
- Paper towels, newspapers, or cardboard scraps (To protect the work surface)
- Rubbing/isopropyl alcohol
- Latex gloves (if preferred)

Safety: Do not consume the paint. Avoid getting the paint into your eyes, ears, nose or mouth.



Begin with a coat of white paint, which will act as your primer. You may need to apply multiple primer coats, especially if there's a dramatic color change between the native filament color and the desired finished look. Be patient and wait until each coat is fully dry before applying a new coat. Once the base coat has dried, you are ready to begin applying the color(s) you want for your finished quality model. Just as with the primer coat(s), make sure to be patient, apply the paint where you want it and apply multiple coats if needed. Adding thinner, multiple coats will avoid a lumpy or dripping application. It may be useful to mask off areas for a crisp line or separation between colors.



In our example, we put a second coat of paint on the 3-D print of Jigglypuff to get to the finished product.

Tip: When you are pleased with your paint job, you can brush on a coat of Mod Podge for a gloss look.



You can apply the final colored paint directly to the print straight from the 3D printer. This molecule (theobromine, flattened, if you are interested) was a grey print, so some portions only need one coat of color, while others (lighter colors in this case) were given two coats of acrylic paint.