Overview
These tips and tricks are designed to help you create better and more stable parts using PLA materials on any of the Stratasys F123™ Series 3D Printer.

Part Design
Thin-walled parts are not optimal with the use of PLA, especially ones that only get a single contour of toolpath generated as there is an issue with the open seams. Therefore, creating parts thick enough to get a double contour and hiding the start will print as expected.

Processing Guidelines
Most PLA parts are designed to be printed without support so don’t be afraid to use the “base only” support option.

When using PLA support the following tips are useful:

- Using linked contours are best since they hide the start of a toolpath, which may be under-extruded.
- Avoid using support when building small features. PLA can generally bridge one inch fairly well and small overhangs without support.
- In the event a part fails because it popped off the substrate or support base, reorient the part in Insight™ or GrabCAD Print™ and increase the surface area.
- Support removal is easy on large flat areas and increases the surface area of the part to tray, therefore increasing adhesion.
PLA - TIPS & TRICKS

Packing Guidelines
You can print many parts in a single build so fill the tray. This may increase the time between layers, but will make support removal easier. If you have a part with small or detailed features, try building this part by itself or as a pack of the multiple parts that are the same.

System Preparation
Trays can be reused, especially when there is a large amount of surface area between the base and the tray. However, note that the adhesion decreases with each use. When printing a critical part always use a fresh build tray.

Support Removal
Use the knife/scraper to get between largest areas of part and support for cleaner and easier support removal.

TIP
Necessary tools - pliers, knife or scraper

When removing support, if you are having trouble getting it to pop off the tray, try a different side as different areas of the part may have higher adhesion than others (likely around seams).

TIP
When printing a square block, the first side's base may not remove easily. Turn the part 90 deg and try to remove from that side. When printing a cylinder, try turning in 20 degree increments until you hit an area where the base removes easily.

Don’t try support removal on parts that are freshly printed (<60 seconds) as the model could still be warm and is more likely to deform. Same for parts that trigger - Minimum Layer Timer or are solid. Give them more time to cool or you risk deforming the parts when you handle them.

CONTACT
For questions about the information contained in this document, contact Stratasys at www.stratasys.com/contact-us/contact-stratasys.