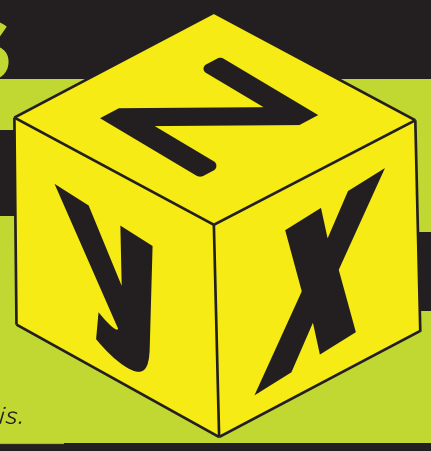
PRACTICAL PRINTING

A handy cheat sheet for fused filament 3D printing

core ELECTRONICS

USEFUL PRINT TESTS

1) CALIBRATION CUBE



Download at coreelec.io/30

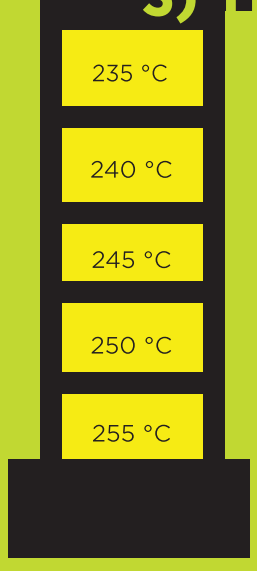
Most FFF (Fused Filament Fabrication) 3D Printers boast dimensional accuracy of ±1%. Print a calibration cube and measure it with some digital callipers to test the dimensional accuracy of your printer.

**Dimensional accuracy may be improved in your slicing software for all axis.*

2) NEGATIVE SPACING TEST

Negative spaces rely on tolerances of both your printer and the properties of your filament. Print one of these tests to find out the minimum spacing required for a snug 3D print. Great knowledge for print in place components.

3) TEMPERATURE TOWER



Filament comes with suggested print temperatures, however to really dial in your filament and printer combination. Its worth while printing a Temperature Tower to see how small temperature changes affect the finish of your print & what temperature provides the best results.

4) STRINGING TEST

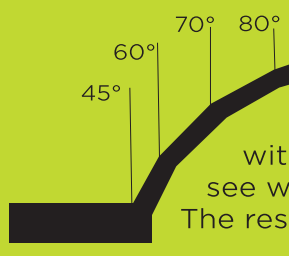
If your part requires separate features to be printed on the same layer, you'll need to dial in your retraction settings to make sure you get the perfect finish.

**This test is a quick way to test retraction settings.*

5) BRIDGE TEST

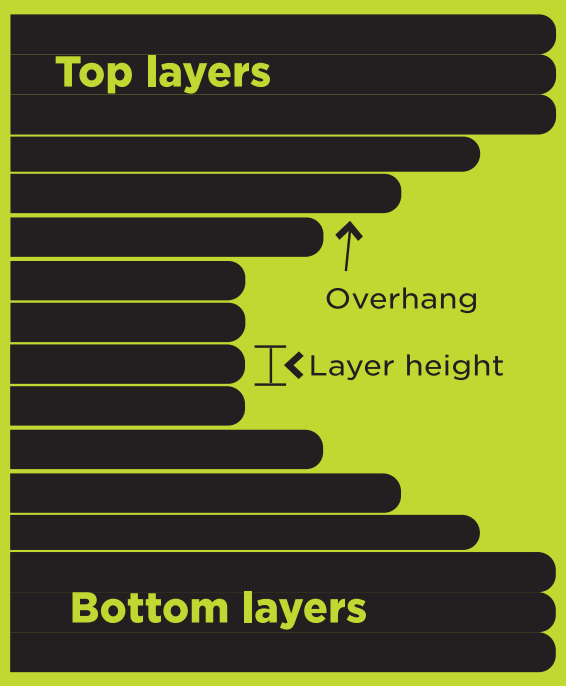
Bridging is when you print between two pillars with no supports. Try printing this model using different combinations of speed & temperature to find the best bridging settings. Optimal settings can bridge huge distances with the right materials.

6) OVERHANG TEST

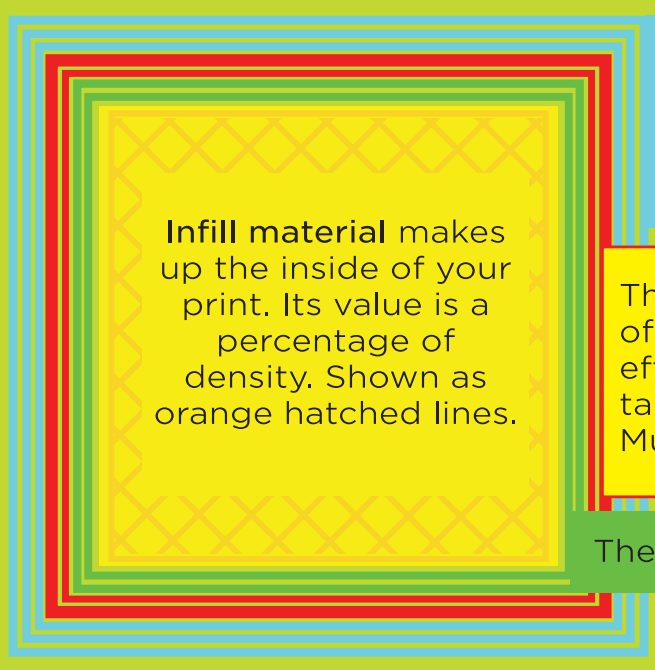


Knowing when a model will need to print with supports is essential. This test allows you to see what angles are printable & which aren't. The results may suprise you!

SIDE VIEW



SLICED VIEW (in Cura)



Skirts, Brims & other support materials shown as light blue lines. These help make unusal shapes & improve the quality of prints.

**These are removed postprint.*

Infill material makes up the inside of your print. Its value is a percentage of density. Shown as orange hatched lines.

The outer shell, shown as red lines, are part of the perimeter of the model. These greatly effect your final surface, so care should be taken to get the best results. Multiple shells help this.

The Inner shell is shown as green lines.

COMMON TYPES OF FILAMENT

Nozzle temperature — *Best used for:*

PLA	ABS	CPE	TPU	PP	PC	PVA
Polylactic Acid	Acrylonitrile Butadiene Styrene	Co-Polyester	Thermoplastic Polyurethane	Poly-Propylene	Poly-Carbonate	Poly-Vinyl Alcohol
Low temperature	*Use ventilation*	Chemical resistant	Impact resistant	Hydroscopic	Hydroscopic	Water soluable
200 - 210 °C	225 - 260 °C	230 - 260 °C	220 - 235 °C	205 - 220°C	260 - 280 °C	215 -225°C
Models, displays all rounder	Mechanical bits impact resistance	Precise mechanical parts (non-Shink)	Rubbery flexible bits (wheels,shoes)	Durable parts, live hinges	Moulds, best impact resistance	Removable supports for delicate prints

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