

Intro to 3D Printing



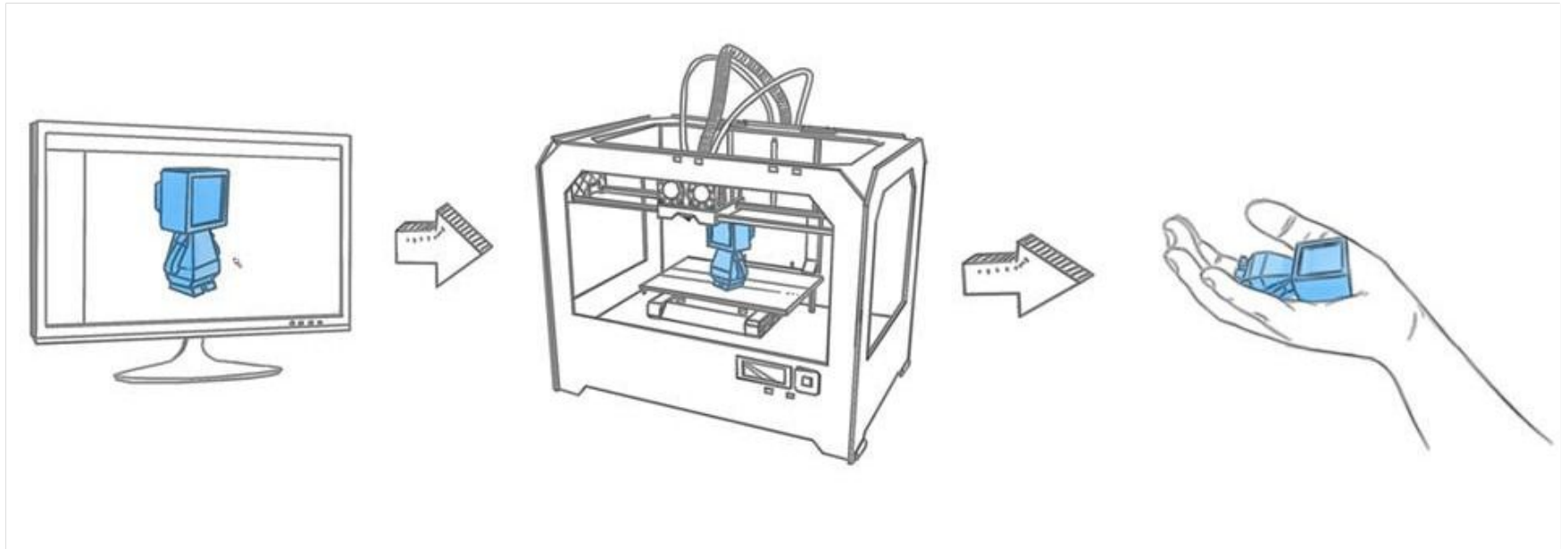
Let's Learn 3D Printing!

- Overview of the 3D Printing Technology
- Empower you to explore and answer your own questions.

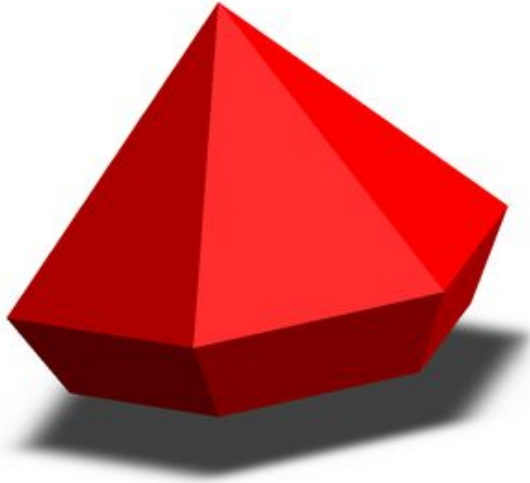


What is 3D Printing?

A digital model is transformed into a physical object, by laying down thin layers of material.



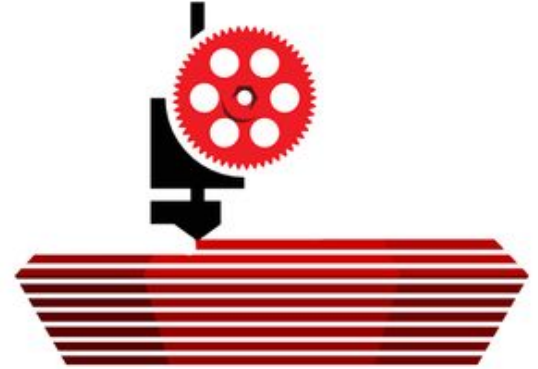
How does a 3D Printer Work?



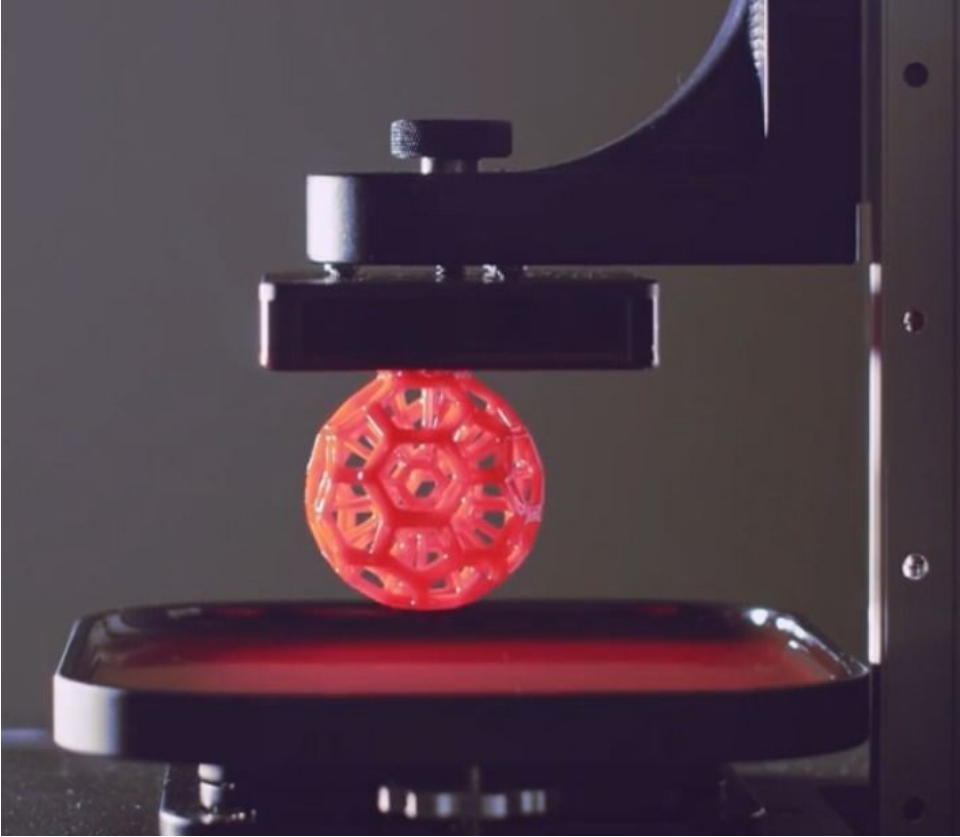
Digital Blueprint



Sliced into Layers



Sent to the Printer



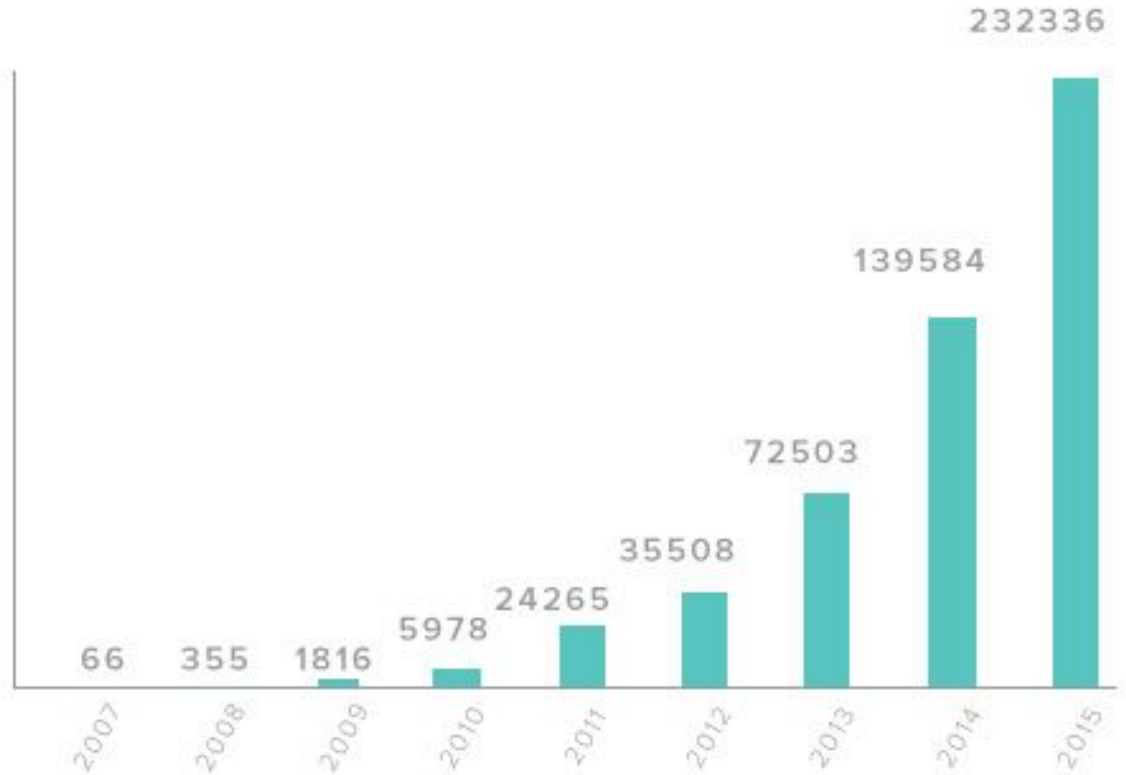
Various Materials and Technologies

Brief History

- Invented in 1983
- FDM Patent expired in 2009
- \$200,000 3D Printers became \$2000
- number doubles every year

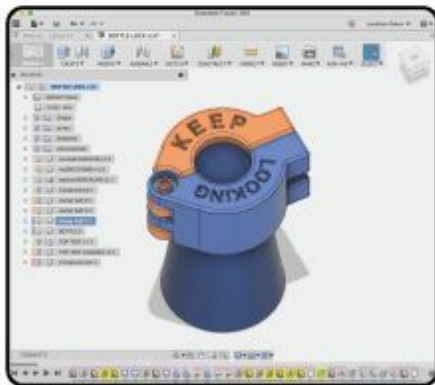
3D PRINTER SALES

Estimate per year from 2007 to 2015

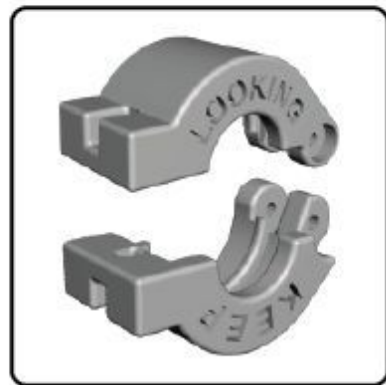




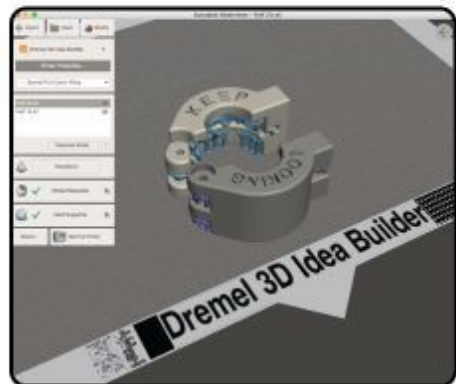
CONCEPT SKETCH



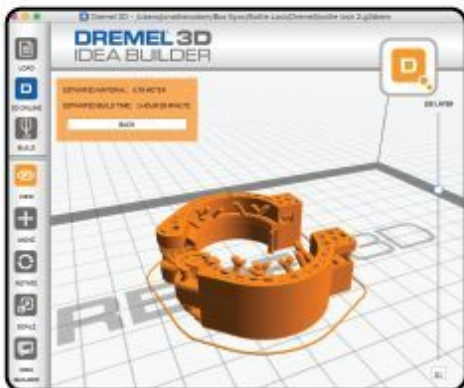
3D DESIGN



STL FILE(S)



LAYOUT / REPAIR / SUPPORTS



SLICING SOFTWARE



3D PRINT

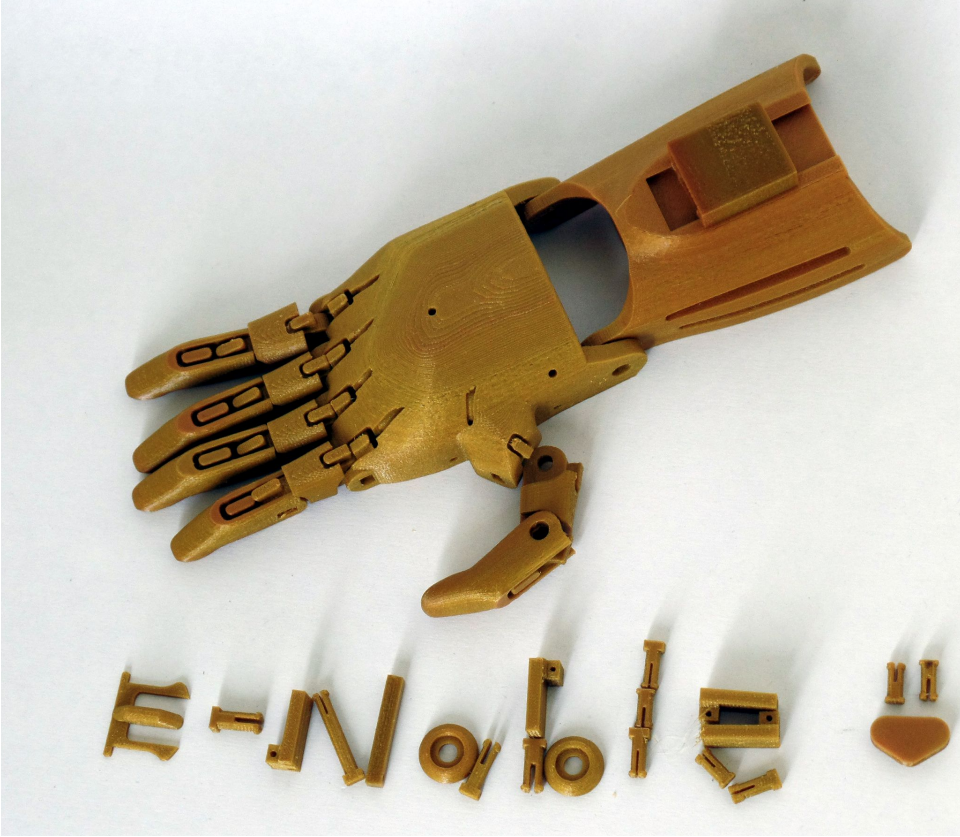
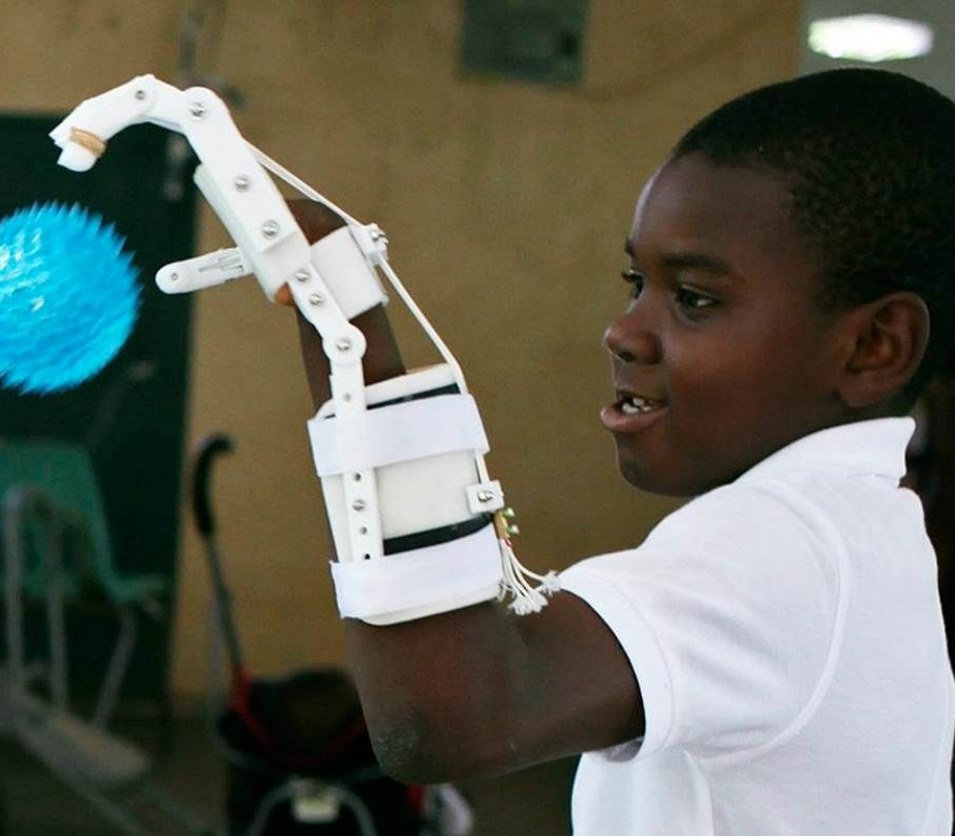




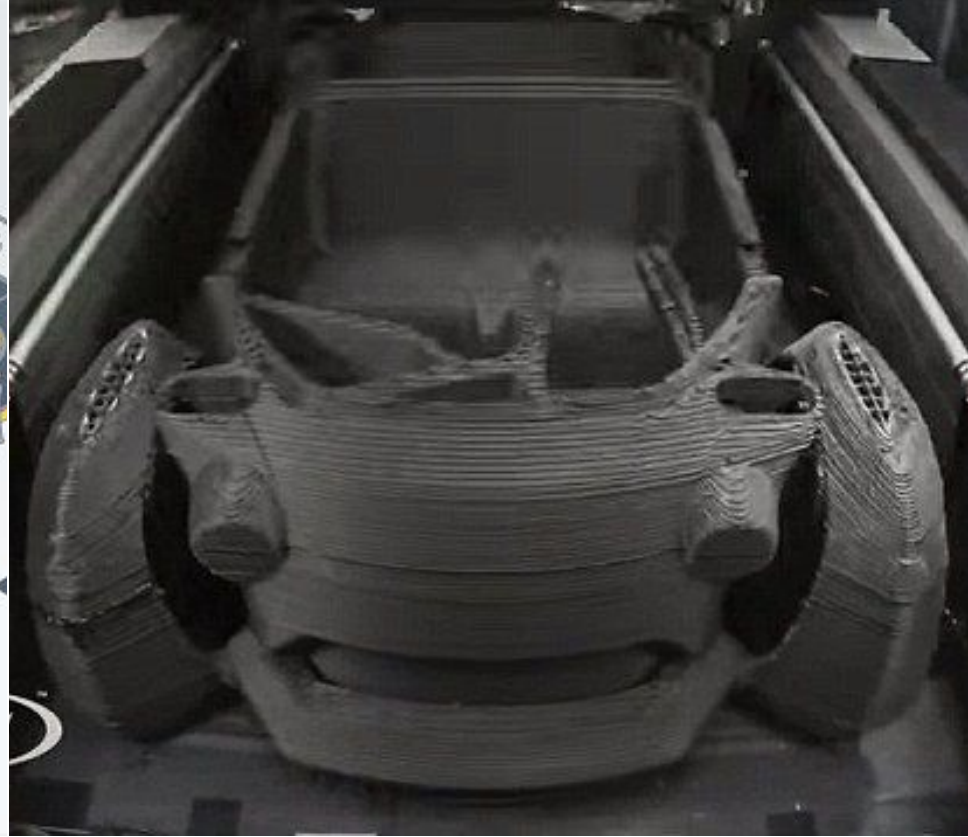
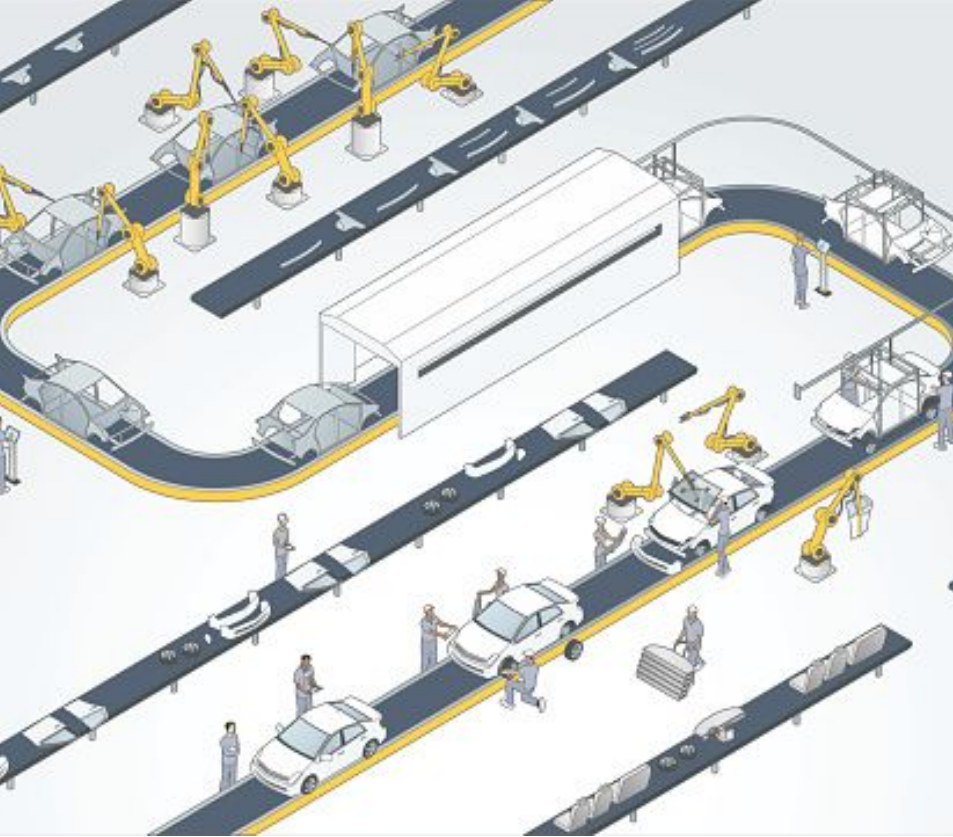
**Why 3D
Print?**



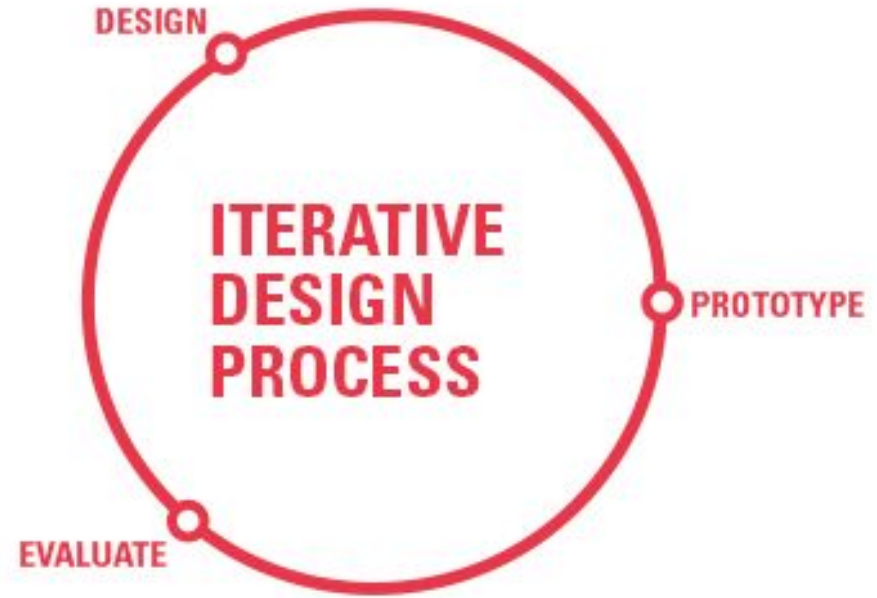
Complex Shapes



Customization



Single Tool Low Cost



Rapid Prototyping

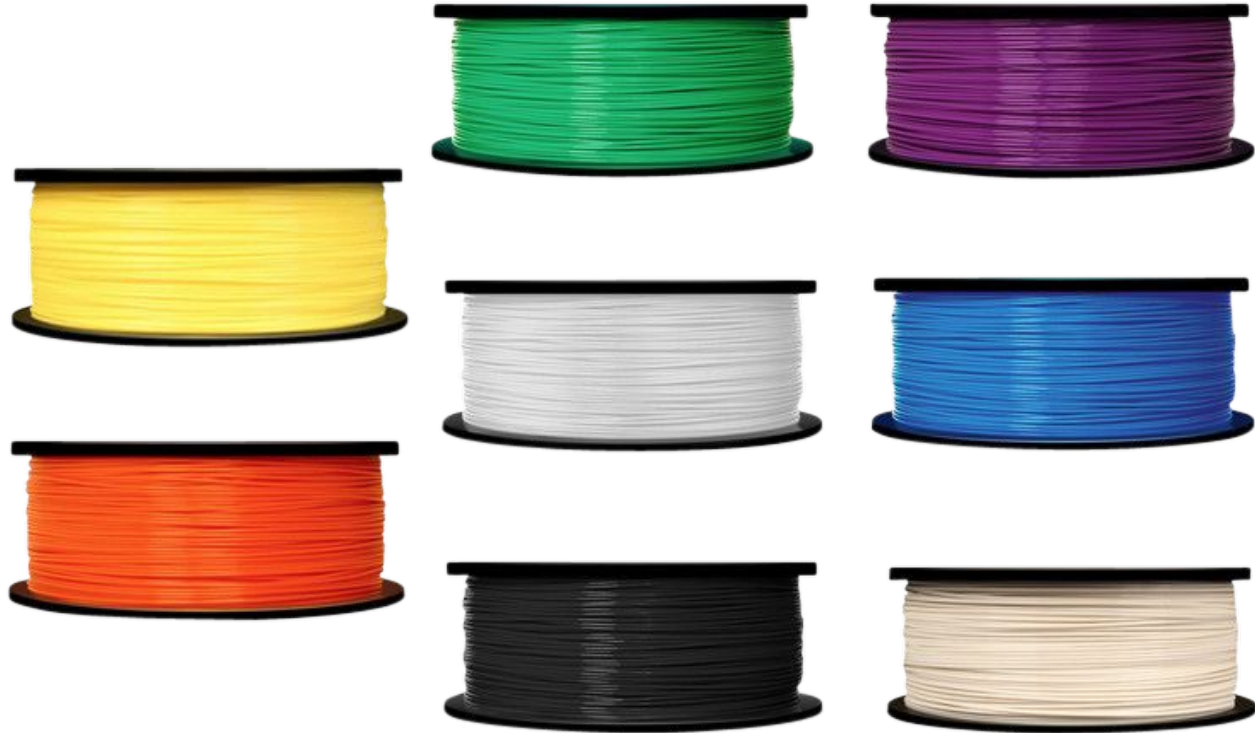


**Why Not 3D
Print?**

Limited Material Choice

→ 50 Shades of
PLASTIC

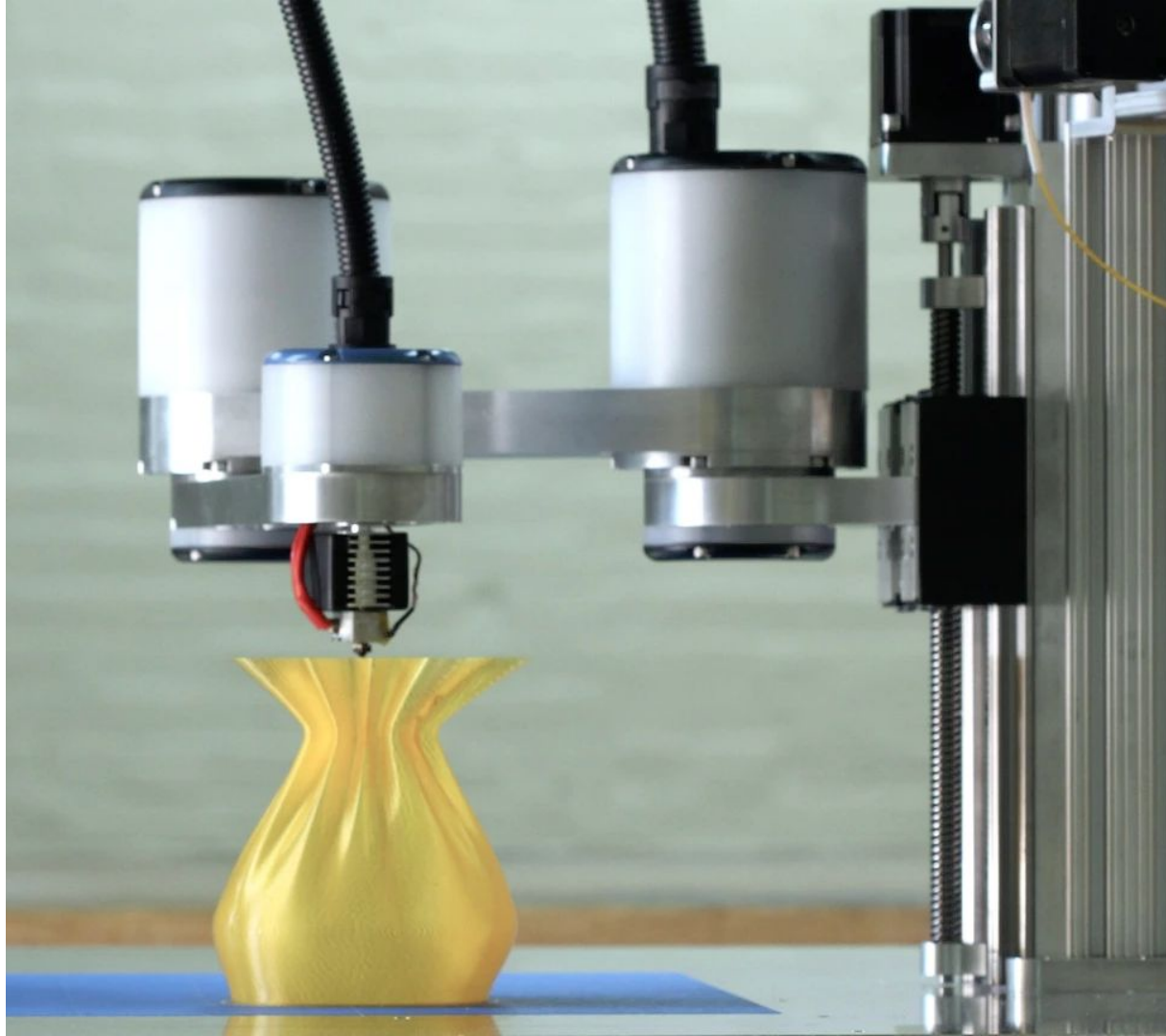
- ◆ PLA
- ◆ ABS
- ◆ PETG



Unreliable

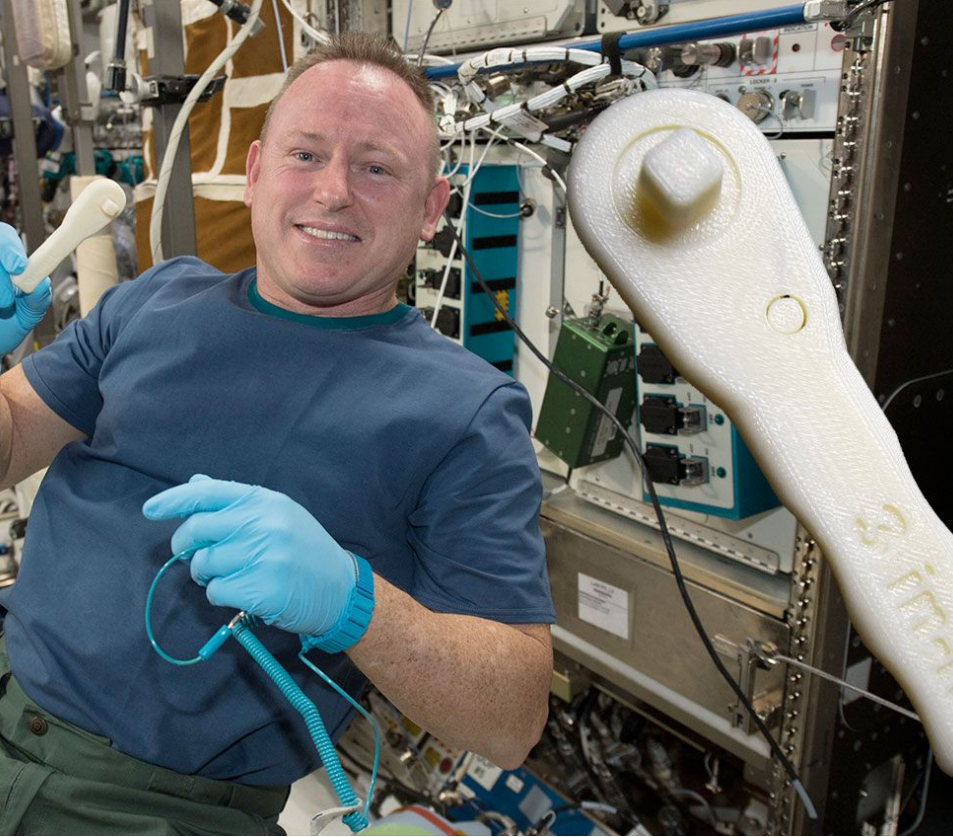


**Low
Precision
and
Strength**



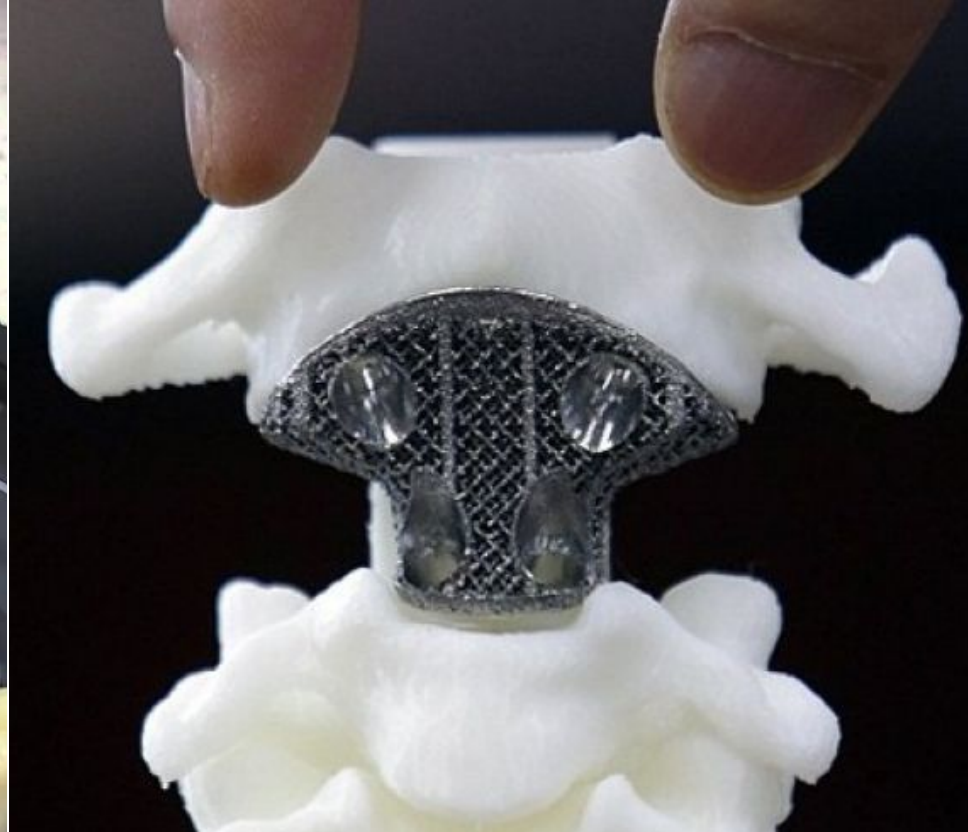


**Who Uses
3D
Printers?**



Aerospace

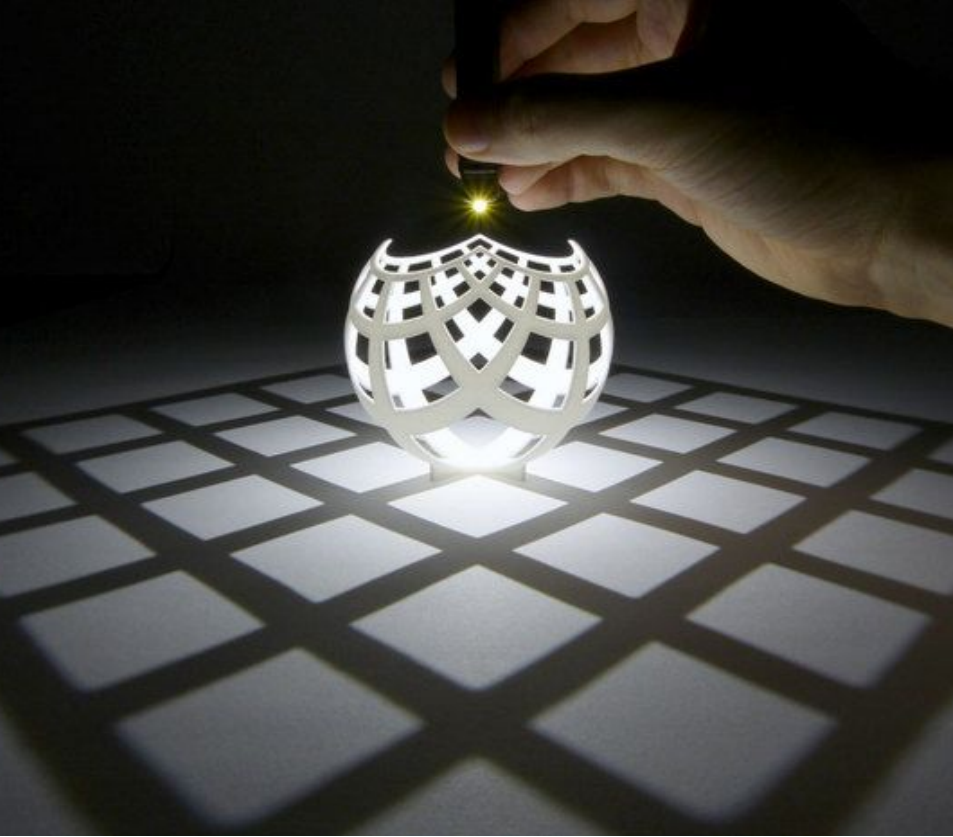
ex Dental Milling



Medical



Designers & Entrepreneurs



Artists



Students

Getting 3D Models

Create Your Own

- [3DSlash](#)
- [TinkerCAD](#)
- Fusion 360
- Inventor
- 3DS Max
- Blender
- Maya
- Onshape

Find Design Online

- [Youmagine](#)
- [Thingiverse](#)
- [MyMinifactory](#)
- [3DHubsPicks](#)

Slicing Into Layers

Cura

Simplify3D

Slic3r

Printing

Printability

- Check Minimum Wall Thickness with [3D Hubs](#) - at least 2mm

Size Limitations

- Scale down
- Divide into multiple parts