

3D Printing & Design Basics

Session Duration:

60-90 minutes

Subject:

Engineering
3D
STEAM (Science,
Technology,
Engineering, Art, Math)

Materials Needed:

Computer or tablet
with internet access

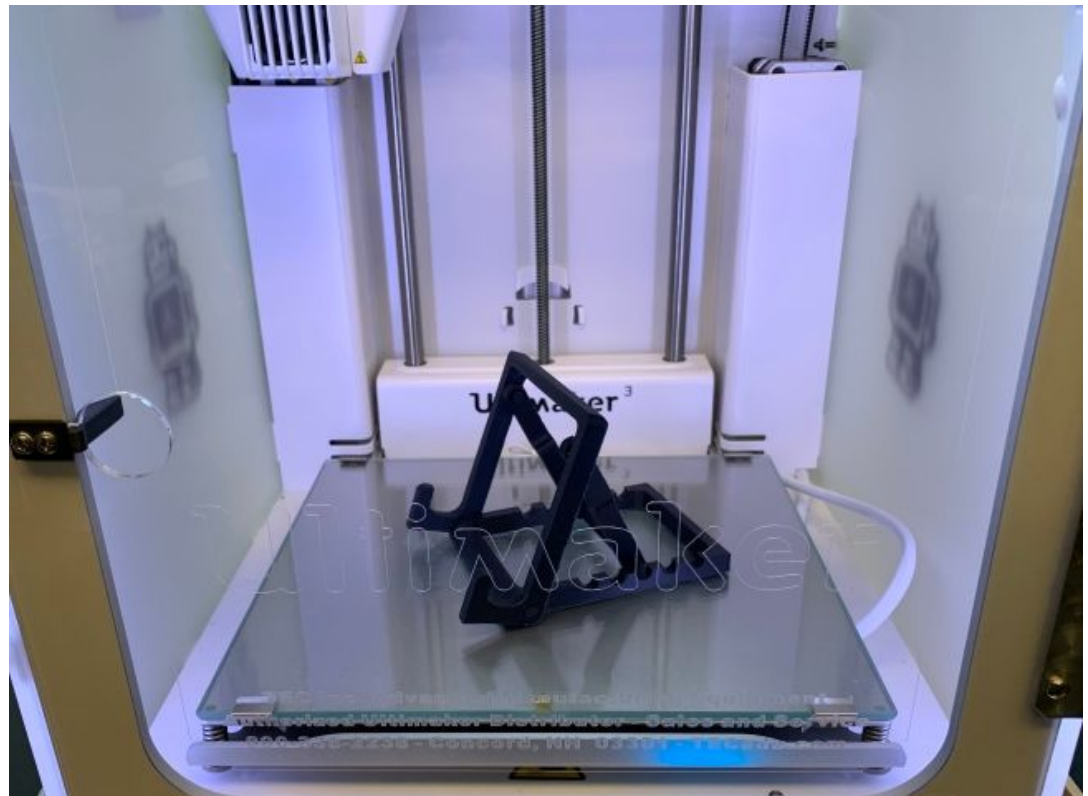
Hooksett Library card

Free Tinkercad Account
with invite code:
MWCXW5L5

Links to Resources:

- Lynda.com/3D-Printing-tutorials/What-3D-printing/151814/164198-4.html?org=hooksettlibrary.org
- Thingiverse.com
- Tinkercad.com
- 3ders.org/3d-printing-basics.html
- Hooksettlibrary.org/3D-Printing

Contact:



Learn how 3D printing machines work, and with Tinkercad design a simple 3D object for printing during this class. We'll also demo our brand new Ultimaker 3 print during the class. Materials needed: tablet (iPad or Android tablet), or computer, or Chromebook, with internet connection.

What is a 3D Printer?...

“A 3D Printer is a manufacturing tool used to create three-dimensional artifacts that have been designed on a computer. 3D printers have a wide range of shapes, sizes, and types, but in essence they are all computer controlled additive manufacturing machines. Similar to how paper printers lay down ink in one layer to create an image, 3D printers lay down or cure material layer by layer to create a three-dimensional object.”--Lynda.com

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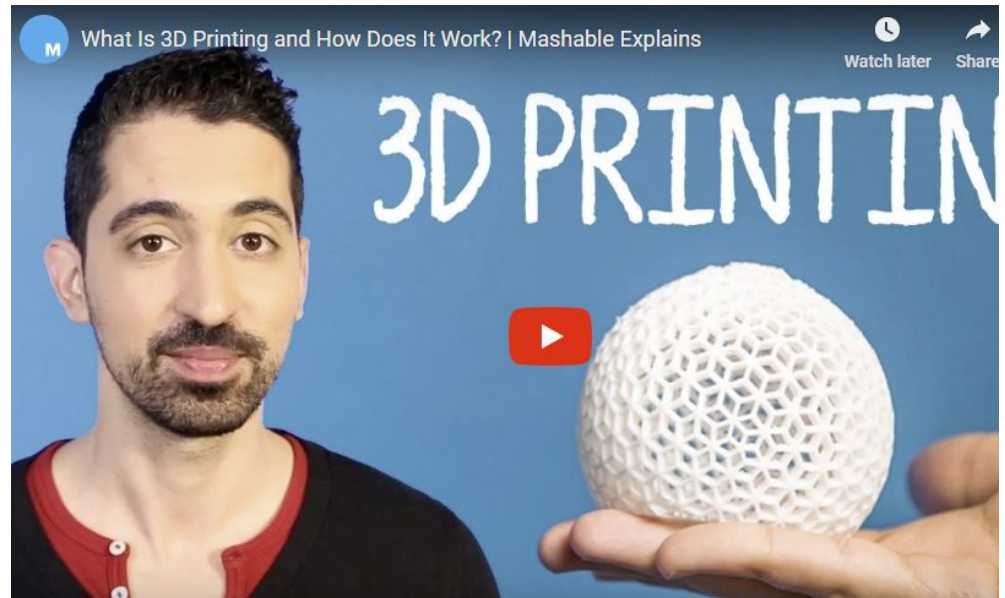
History of 3D Printing...

"3D printing is a hot topic in the media today, but it's actually been around since the 1980s. [...] Charles Hull coined the term 3D printing when he invented the first stereolithography machine in the late 1980s. This first printer, used a laser to cure resin, and it was invented as a rapid prototyping technology. At the time, computer aided design was really taking off, and those first machines let designers and engineers see their ideas in 3D much faster."--Lynda.com

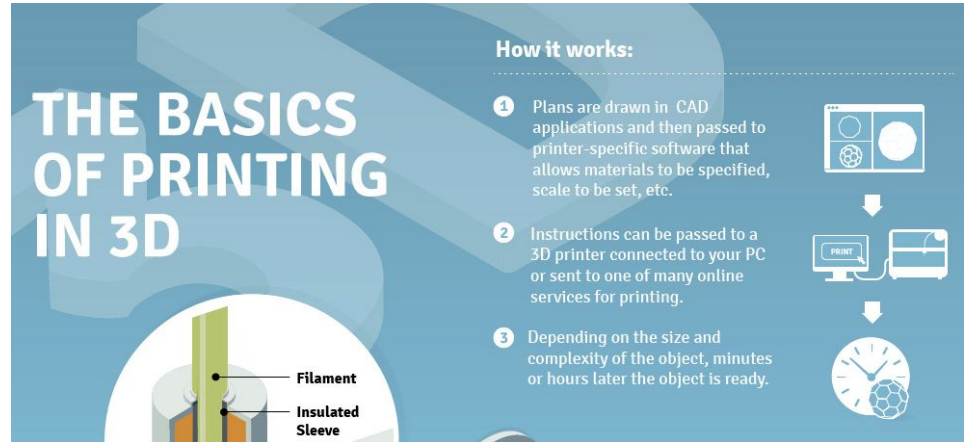
Statetechmagazine.com/sites/default/files/uploads/history-3d-printing-760.png

How 3D Printing Works...

[Youtu.be/Vx0Z6LplaMU...](https://youtu.be/Vx0Z6LplaMU...)



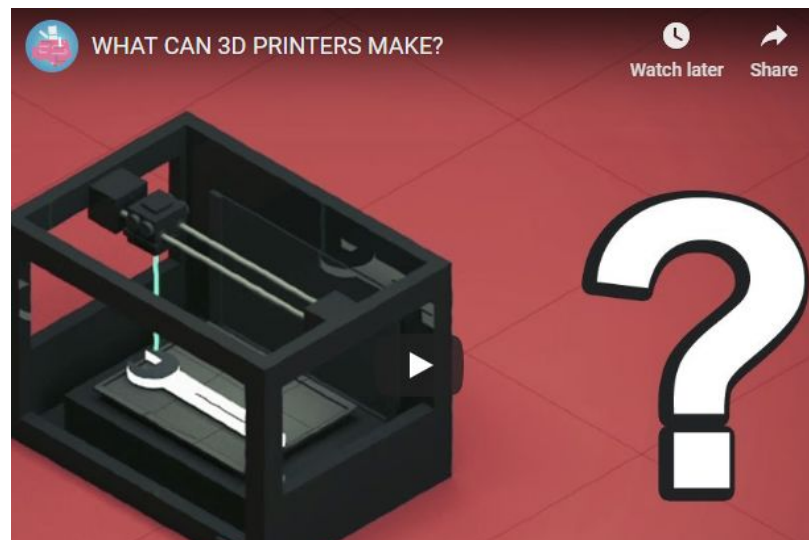
The Basics of Printing in 3D Infographic >
Cponline.thecanadianpress.com/graphics/2013/static/3D-Printing-Basics.jpg



What Can 3D Printers Make?

There are several different 3D printing technologies. The main differences are how layers are built to create parts: SLS (selective laser sintering), FDM (fused deposition modeling) & SLA (stereolithography) are the most widely used technologies for 3D printing. Selective laser sintering (SLS) and fused deposition modeling (FDM) use melted or softened materials to produce layers.

[Youtu.be/E2xFBMO7thE](https://youtu.be/E2xFBMO7thE)



[Youtu.be/FSu19nz7NIE](https://youtu.be/FSu19nz7NIE)



List of Best 3D Printing Software...

3ders.org/3d-software/3d-software-list.html

3D Design Exercise with Tinkercad...

Tinkercad.com

