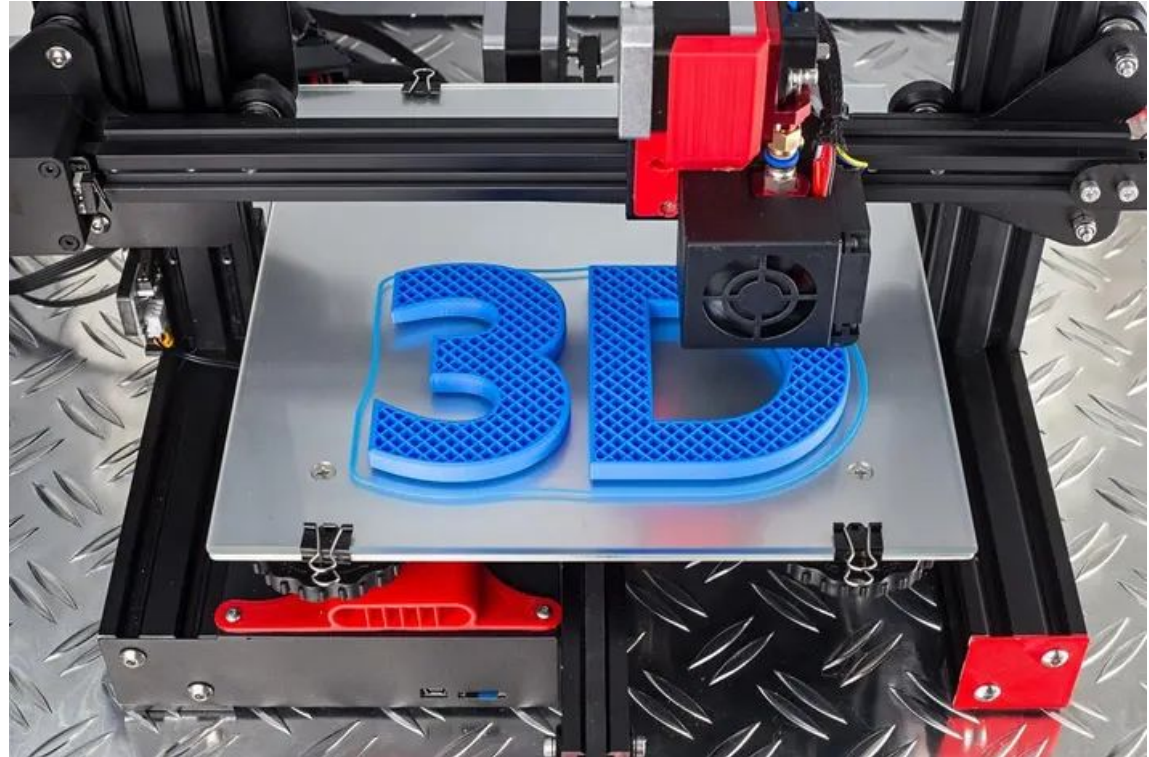




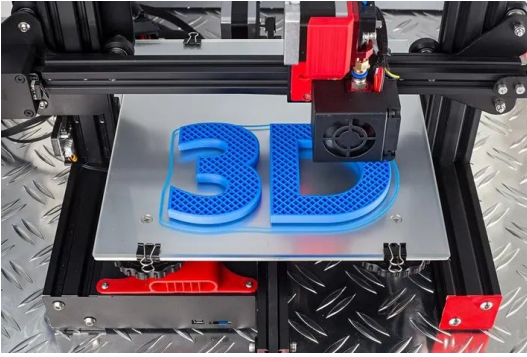
3D Printing and Design

Part 1: Introduction to 3D Printing

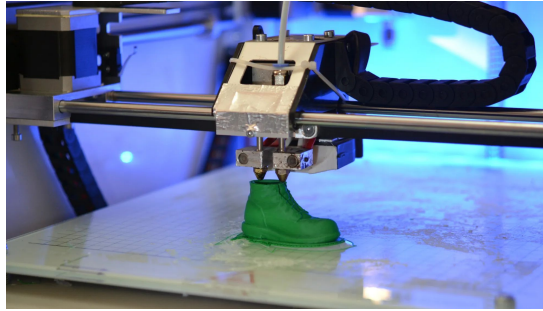


Engineering Ambassadors

**University of Illinois
Urbana-Champaign**



What is 3D printing?

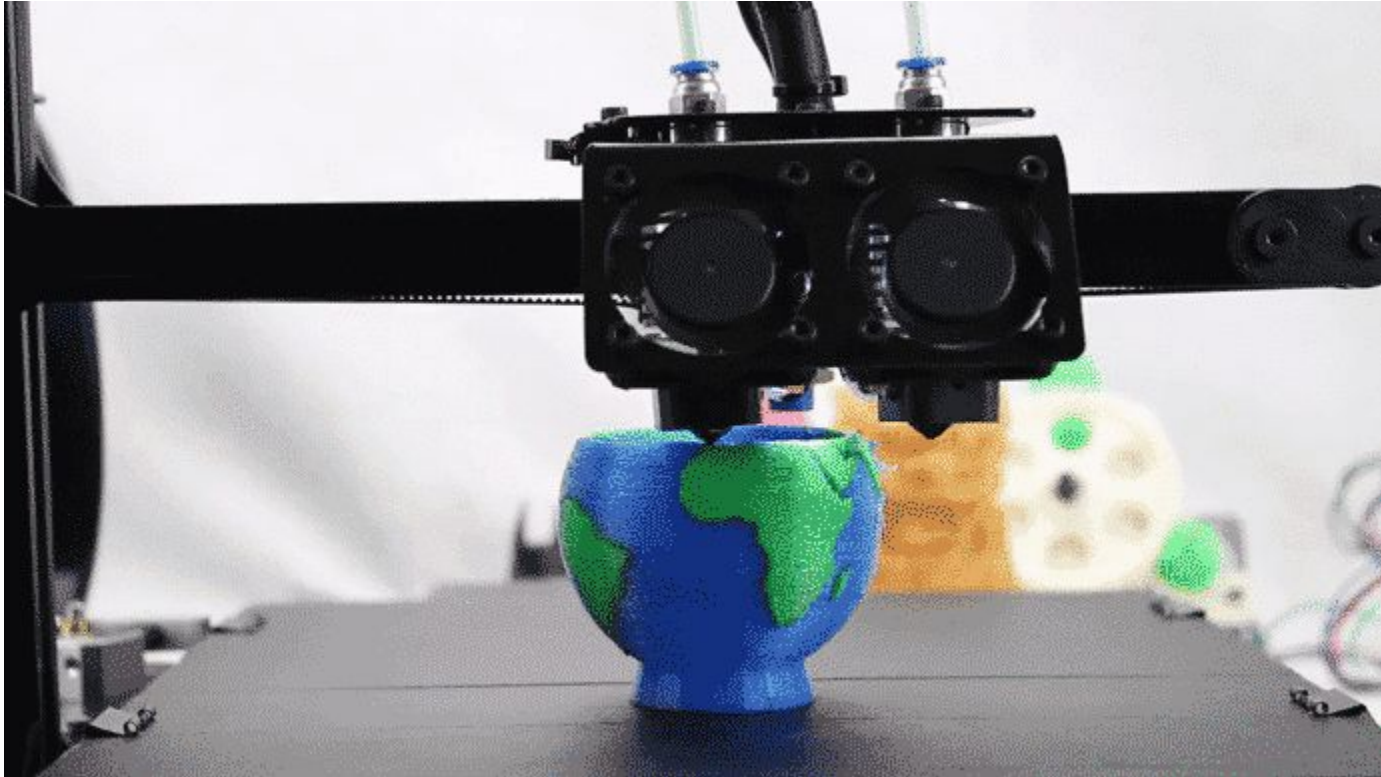


How does 3D printing work?



Applications

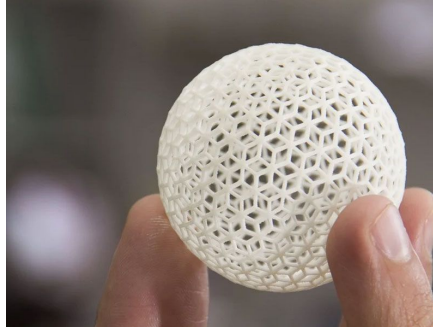
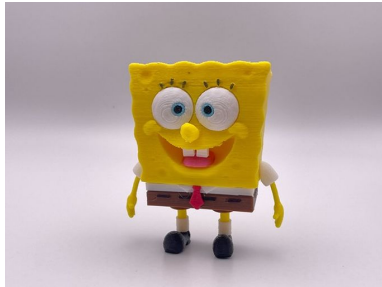
3D printing is the use of materials to create 3D objects by building things in layers.



3D printing is really useful when you want to create something that doesn't already exist.

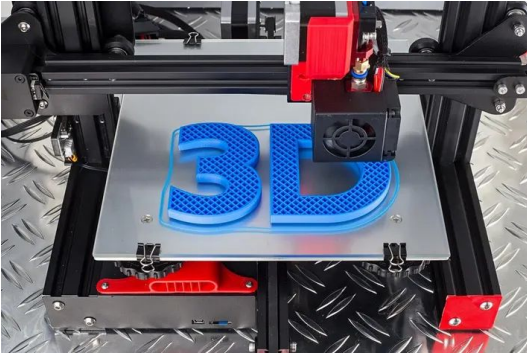


3D printing can be used to create cool hobby items.

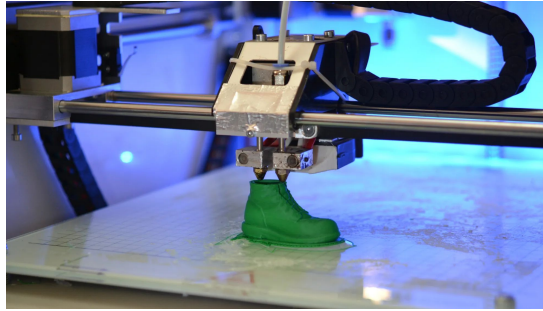


And 3D printing can also be used by engineers to quickly prototype ideas.





What is 3D printing?



How does 3D printing work?

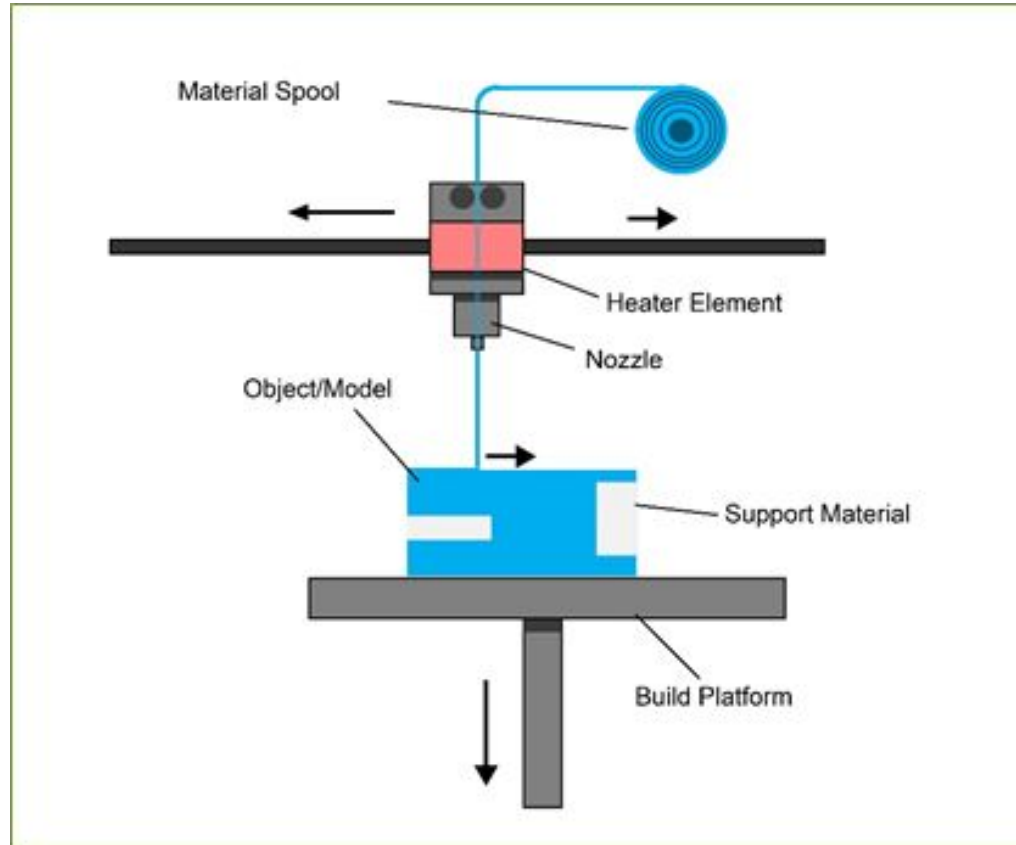


Applications

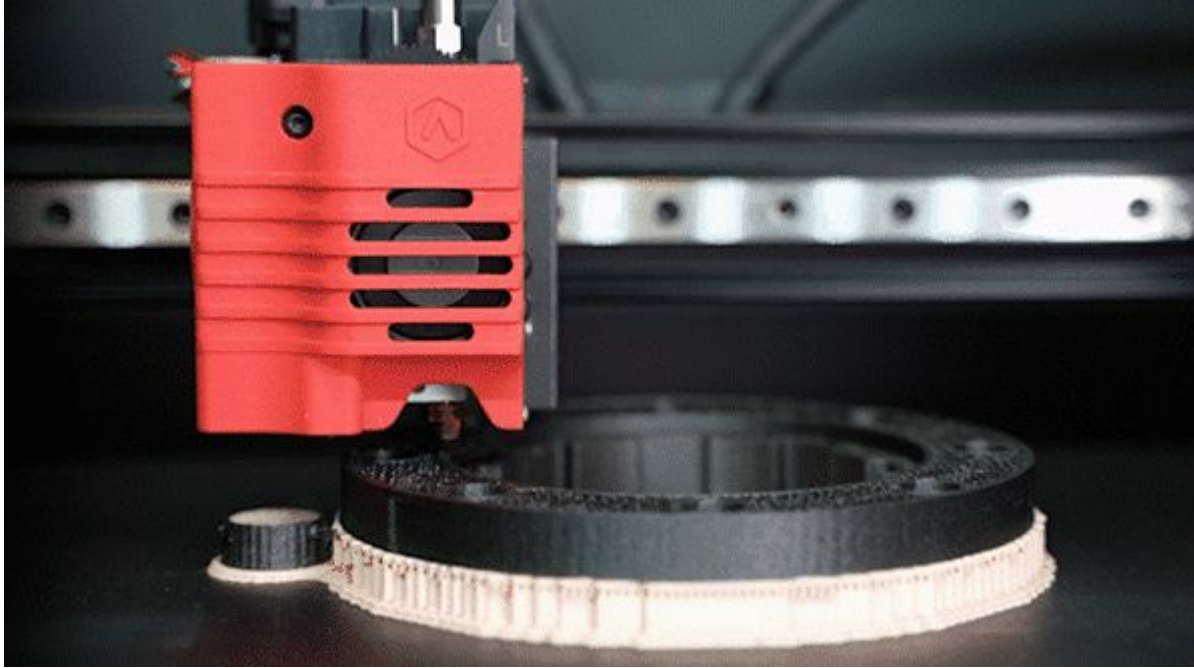
3D printing starts with a material such as plastic filament.



Plastic filament is melted and ejected out of a nozzle.

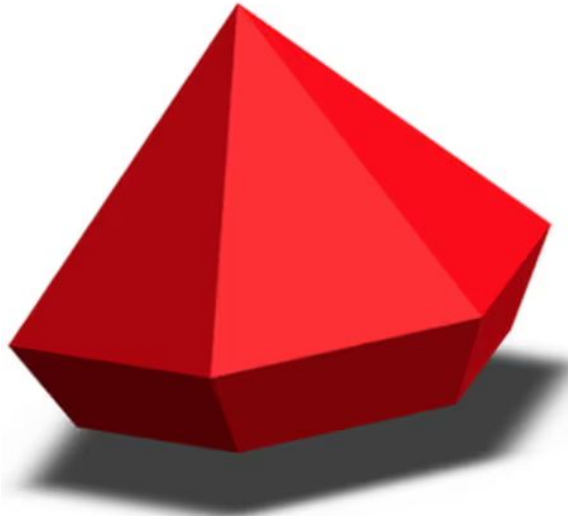


The nozzle moves to put plastic down on a build plate.



The 3D object is built up from the bottom up, layer by layer.

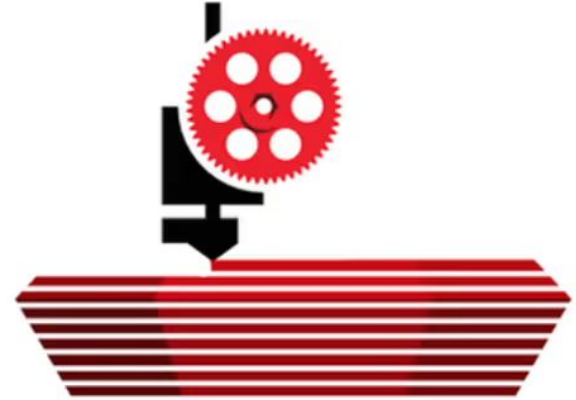
STL



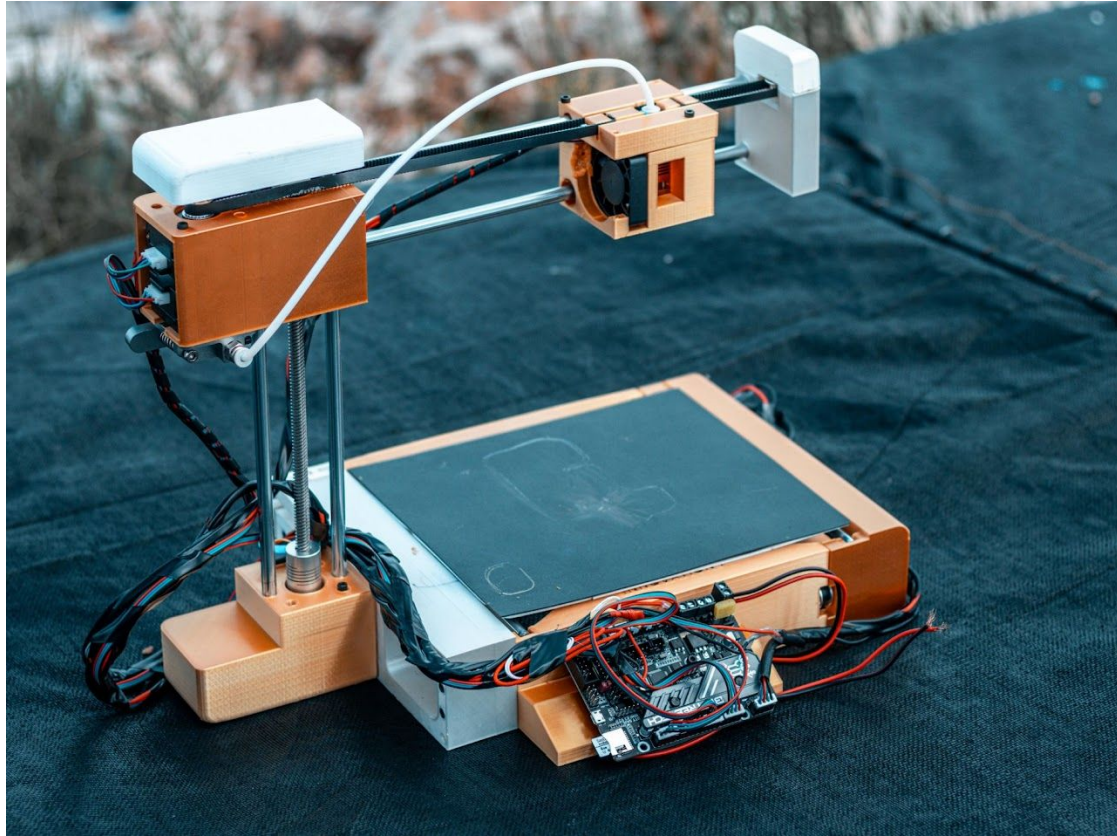
Slicer



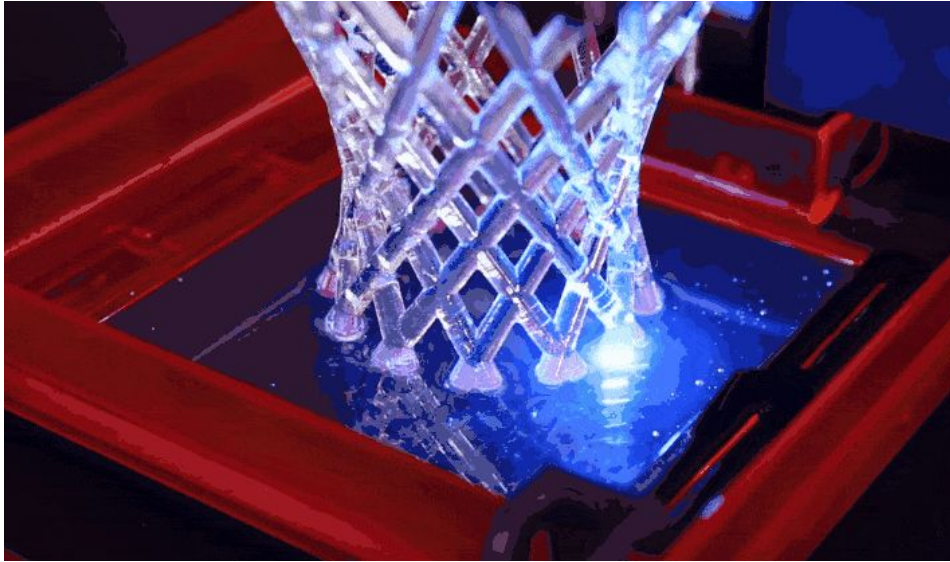
3D Printer

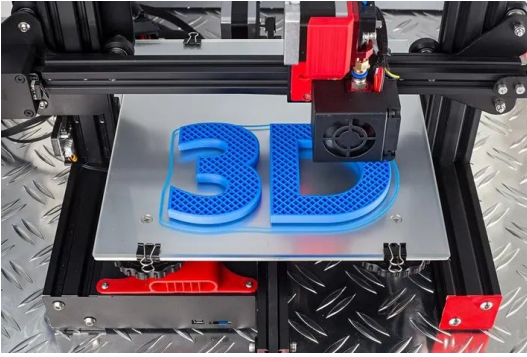


Demo!

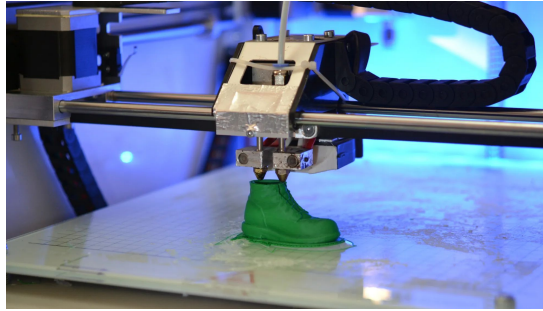


Some printers use light to create objects while others can print metal parts.





What is 3D printing?

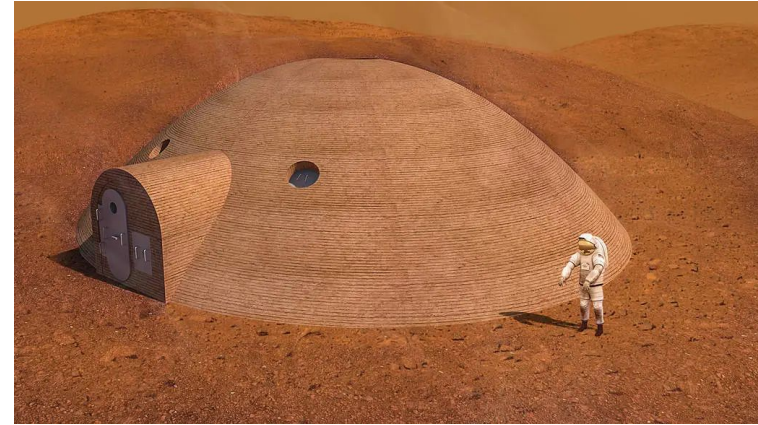


How does 3D printing work?

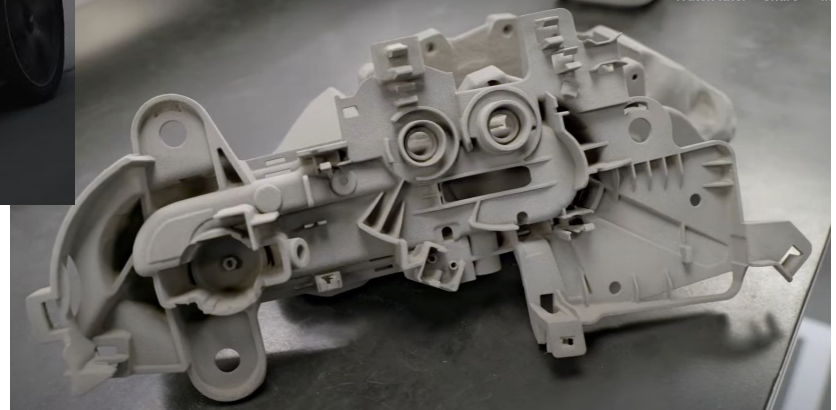


Applications

Civil engineers can use 3D printing to create entire buildings.



Mechanical engineers use 3D printing to quickly create parts for brand new car designs.



Bioengineers use 3D printing to help surgeons prepare for procedures.



3D printing can be used to create prosthetic hands that are specially made for each person.

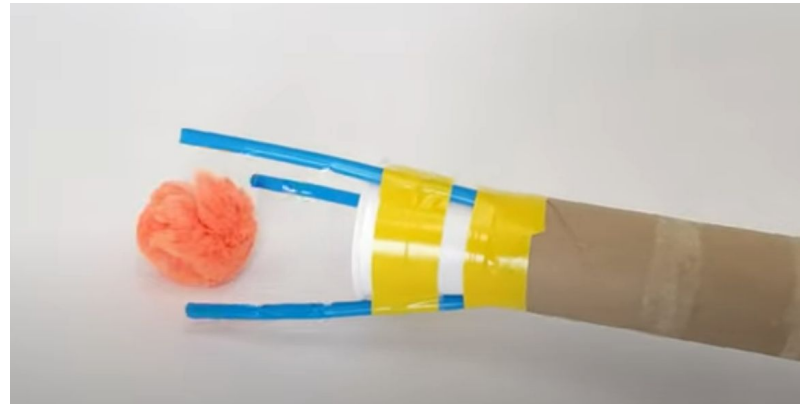




Make your own prosthetic hand!

Mission #1:

- Crumpled paper towel
- Crumpled piece of paper
- Plastic cup
- Bouncy ball
- Play-doh container



Mission #2:

- Create a hand/arm that reaches the longest distance to pick up the crumpled piece of paper

Materials:

- 3D printed fingers
- String
- Straws
- Paper
- Tape
- Play-doh
- Small cups

