3D-PRINTING METHODS GUIDE

4 TYPES OF MACHINES, WHAT THEY DO, AND WHICH ONE IS BEST FOR YOUR PROJECT
ADDITIVE MANUFACTURING IS STILL IN ITS INFANCY.
BUT
3D-PRINTED ARTIFICIAL LIMBS,
MAKEUP, FASHION, PIZZA

JOSH HARKER HEADRESS
CARS, JET-ENGINE PARTS, HUMAN ORGANS, AND HOUSES ARE ALREADY A REALITY.
3D PRINTERS ARE EVEN PRINTING 3D PRINTERS.
BUT WHAT'S IT ALL ABOUT?

LEARN ABOUT 3 TYPES OF 3D PRINTERS
AND THEIR SUBTRACTIVE COUSIN, THE CNC MACHINE.
First, did you know that shipments of 3D printers will more than double in 2015?
AND THAT GARTNER PREDICTS 2.3 MILLION UNITS TO SHIP WORLDWIDE BY 2018?
Now, before getting into machine types, there's an important distinction to make between additive and subtractive.
ADDITIVE: MACHINES
ADD MATERIAL TO A PART BIT BY BIT.

SUBTRACTIVE: MACHINES CUT AWAY MATERIAL.
OKAY. 
READY TO LEARN ABOUT MACHINE TYPES?

FIRST UP. 
FUSED FILAMENT FABRICATION (FFF):
FFF PRINTERS EXTRUDE A THIN STRAND OF MOLTEN PLASTIC AND BUILD UP OBJECTS LAYER BY LAYER.
They can have a large build area and are great to make strong and low-cost parts, prototypes, and crafts.
NEXT IS STEREOLITHOGRAPHY (SLA):
FOR **SLA**, A UV LASER OR DLP VIDEO PROJECTOR TRACES THE PATTERN, HARDENS THE RESIN, AND PRODUCES PLASTIC PHOTOPOLYMER OBJECTS.
WANT SOME INTRICATELY DETAILED JEWELRY, DENTAL/MEDICAL DEVICES, OR MANUFACTURING PARTS? THIS IS A GOOD BET (ALBEIT MORE EXPENSIVE).

BRACELET & IMAGE BY DORRY HSU
MODEL SOFIA WINBERG
NOW, HOW ABOUT SELECTIVE LASER SINTERING (SLS)?

ODD GUITARS ATOM (OLAF DIESEL)

MANI ZAMANI SCULPTURE ART

3D SYSTEMS PROX 500 SLS PRINTER
A fine layer of powder (using nylon or nylon with glass, carbon fiber, or aluminum fillers) is spread across the print bed, and a laser fuses the powder. Then the process repeats.
NEED PARTS WITH OPEN VOIDS, COMPLEX SHAPES, OR LARGE PRINTS? THEN TRY SLS.
THINGS YOU COULD MAKE INCLUDE: HEARING AIDS, PROSTHETIC LIMBS, SKATEBOARDS, AND AEROSPACE COMPONENTS.
LAST BUT NOT LEAST, THE 3D PRINTER’S COUSIN, THE COMPUTER NUMERICAL CONTROL (CNC) MACHINE:
CNC MACHINES CUT STRONG SHAPES OUT OF SOLIDS.
YOU CAN CUT METAL, WOOD, FOAM, PLASTIC, SANDSTONE, AND THE LIST GOES ON. (BUT SOME MATERIALS WILL BE WASTED.)
FUN FACT: CNC fabrication is used to make injection molds, one of the only ways to create plastic parts before 3D printing came along.
WANT TO LEARN MORE ABOUT 3D-PRINTING TYPES? DOWNLOAD THIS PRINTABLE POSTER WITH THE NITTY-GRITTY DETAILS.
THEN CHECK OUT THE
3D-PRINTING METHODS GUIDE
ARTICLE AND MORE ON 3D PRINTING AT
LINESHAPESPACE.COM.