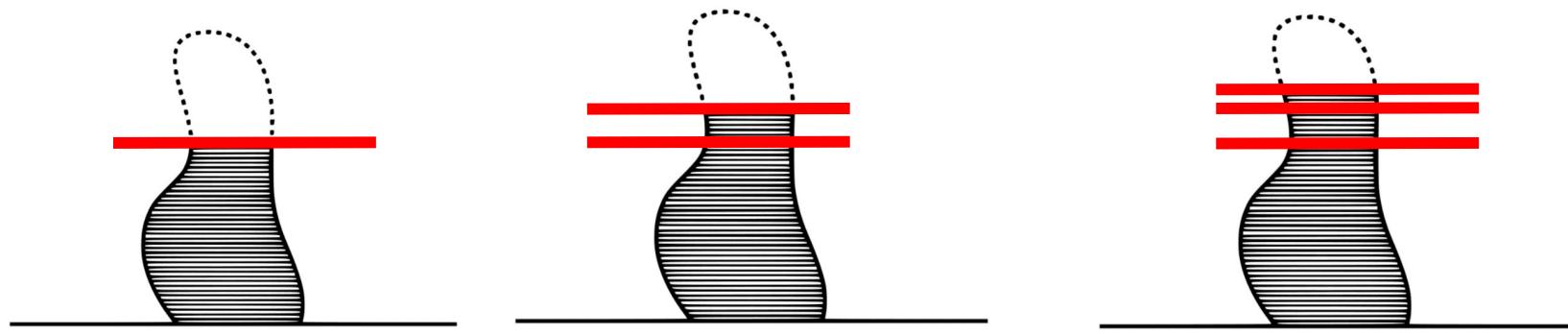


3D printen



WAT?

“ADDITIVE MANUFACTURING”



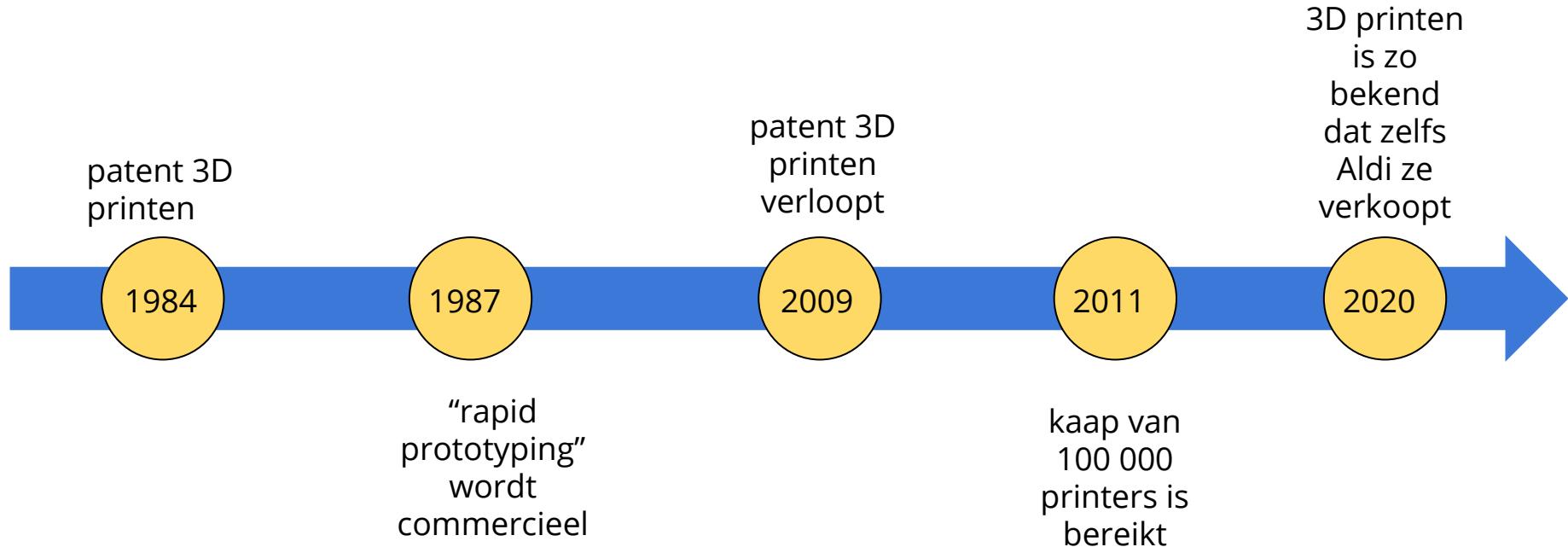
Laag ... na laag ... na laag...

GESCHIEDENIS

Oorsprong:



GESCHIEDENIS



WAAROM 3D PRINTEN ?

voordelen

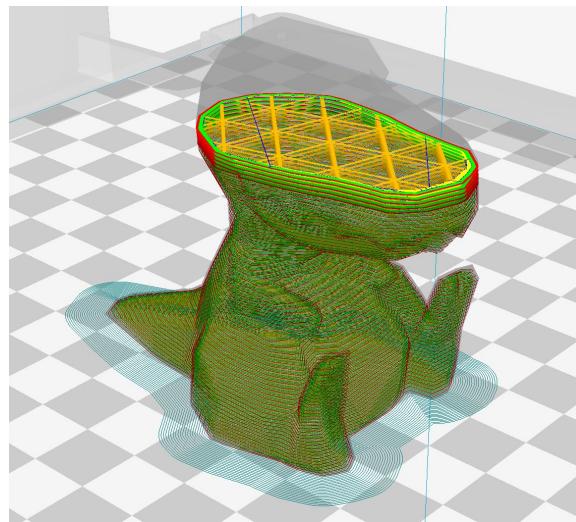
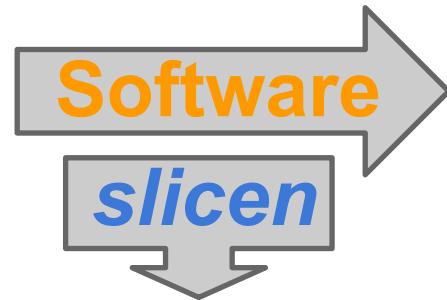
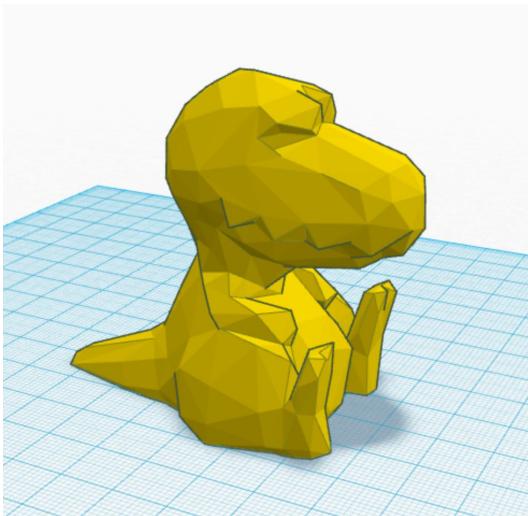
- **minder afval.**
- **customisation / op maat**
- **complexe vormen**
- **efficiënt prototypen**

limieten

- **snelheid en grote oplages**
- **materiaalkost voor grote oplages**
- **materialen**
- **(precisie)**

HET PROCES

Digitale 3D-tekening



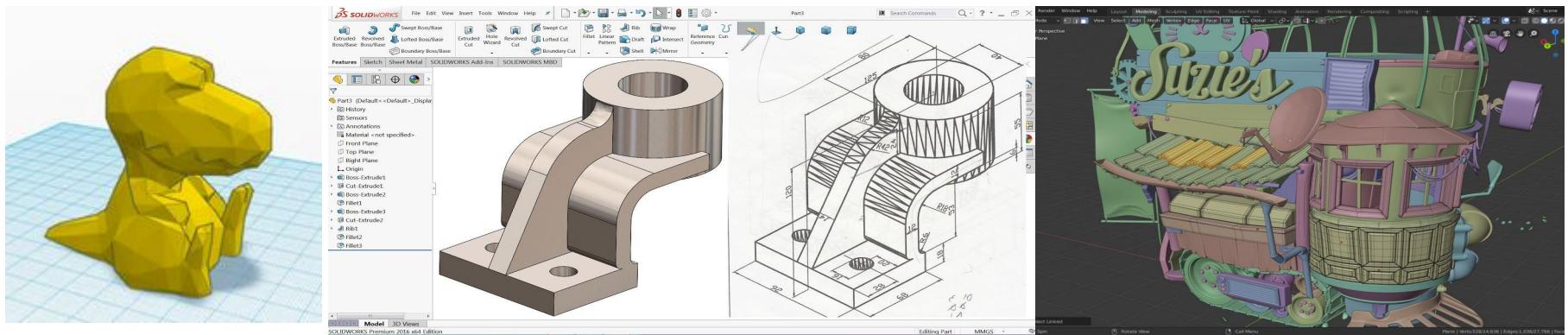
object printen



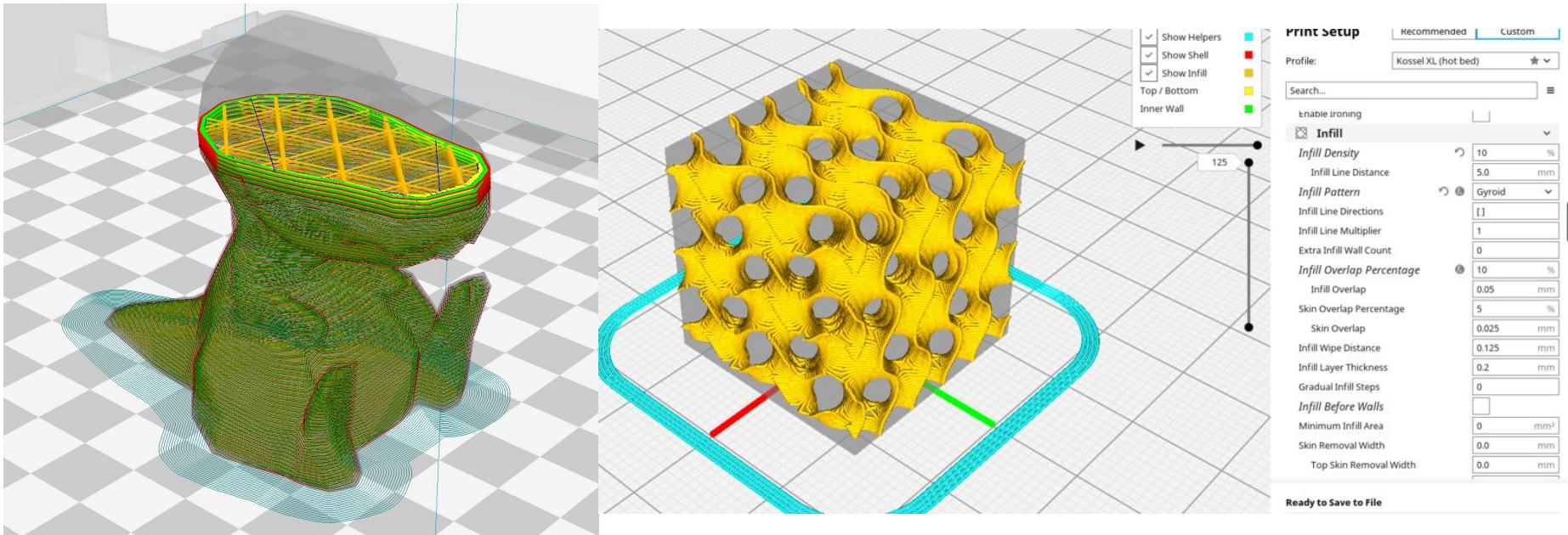
3D FILE

CAD TEKENING

(Computer-aided design)



SLICEN



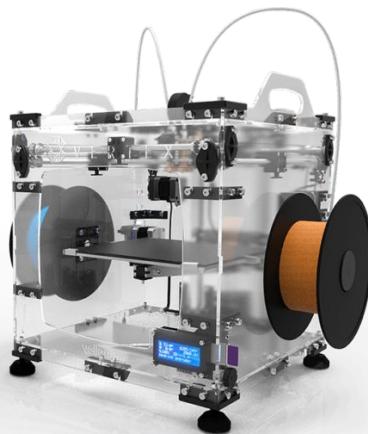
PRINTEN

object
printen



TECHNIEKEN

FDM



**SLA/
DPL**

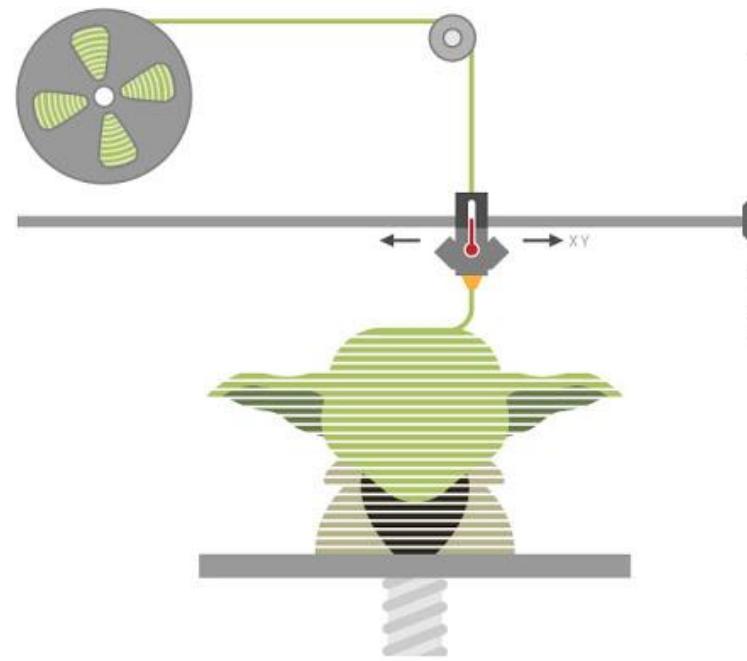


SLS/SLMS

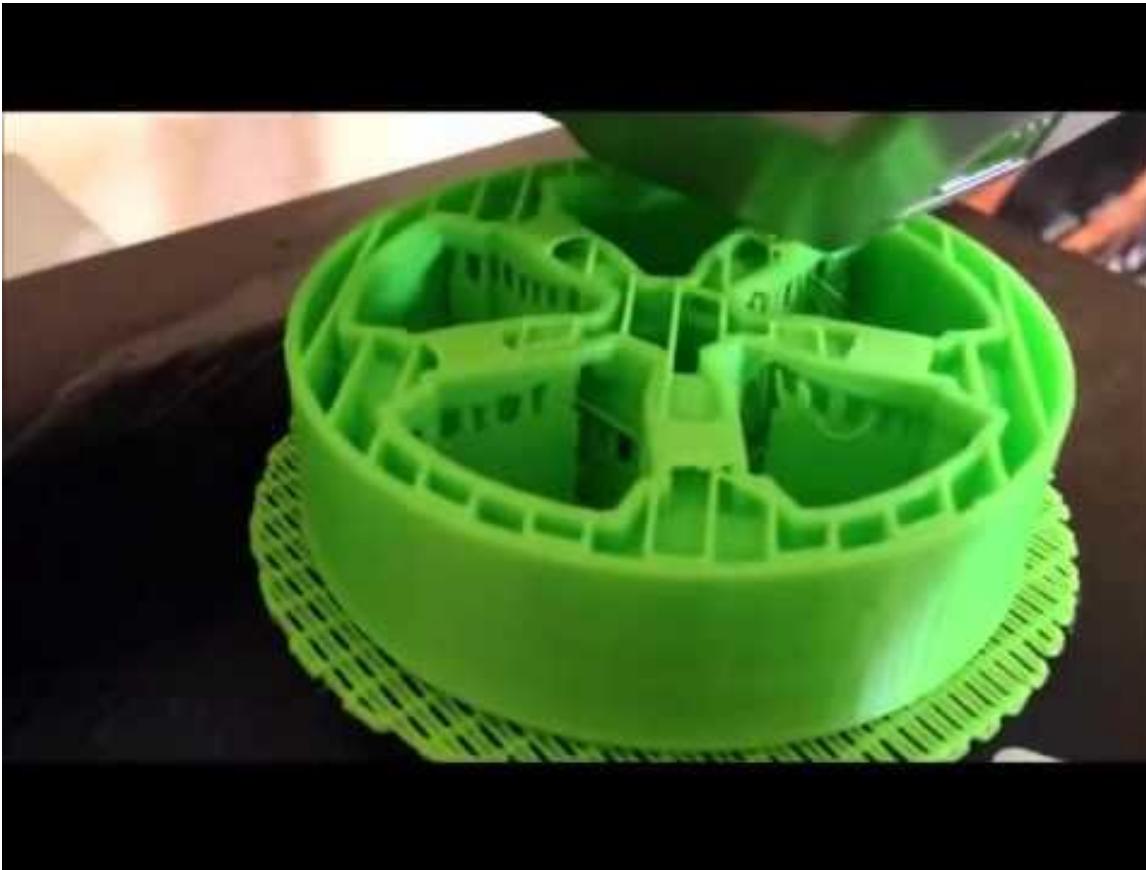


FDM

Fused Deposition Modeling



FDM



Materialen:

- **kunststof : PLA , ABS , PET , PETG**
- **Beton**
- **keramisch**
- **metaal**
- **Blends : koperfill, woodfill , ...**



Print in Wood

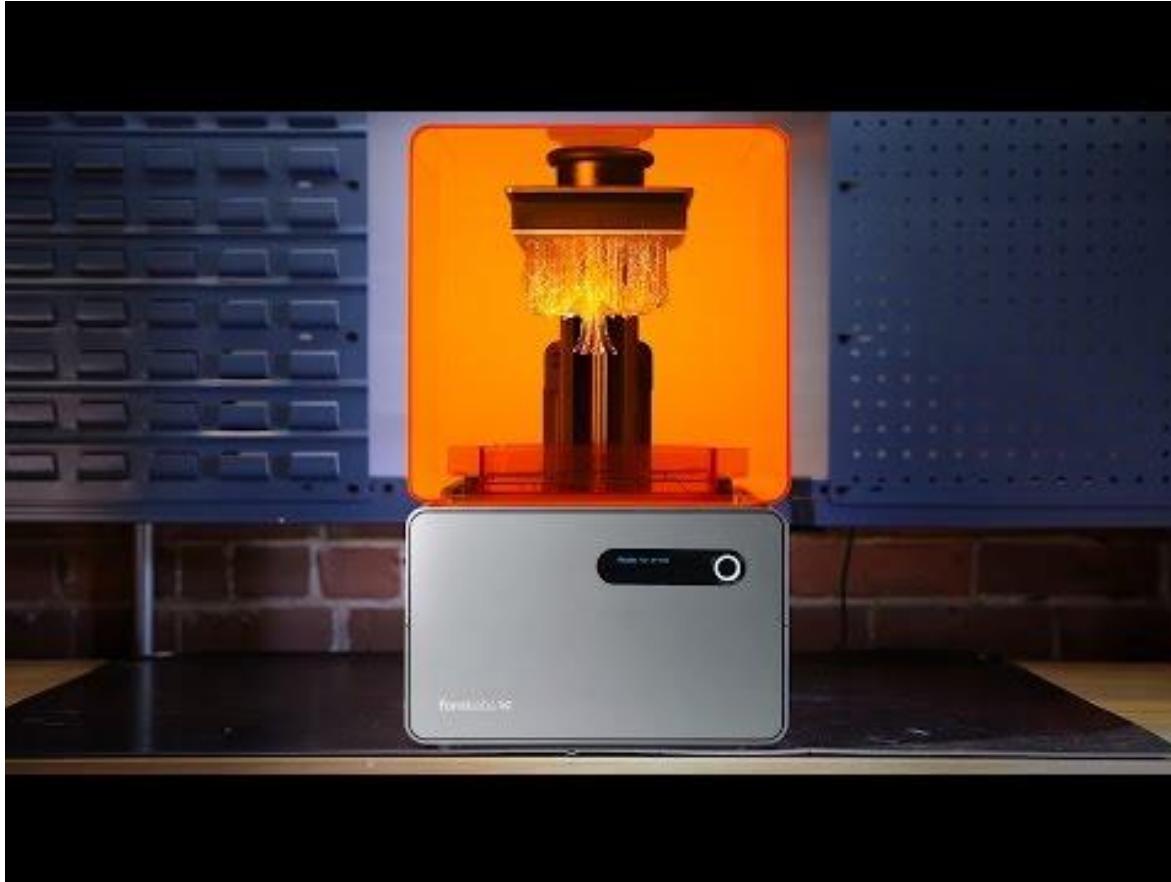


SLA

Stereolithografie



SLA



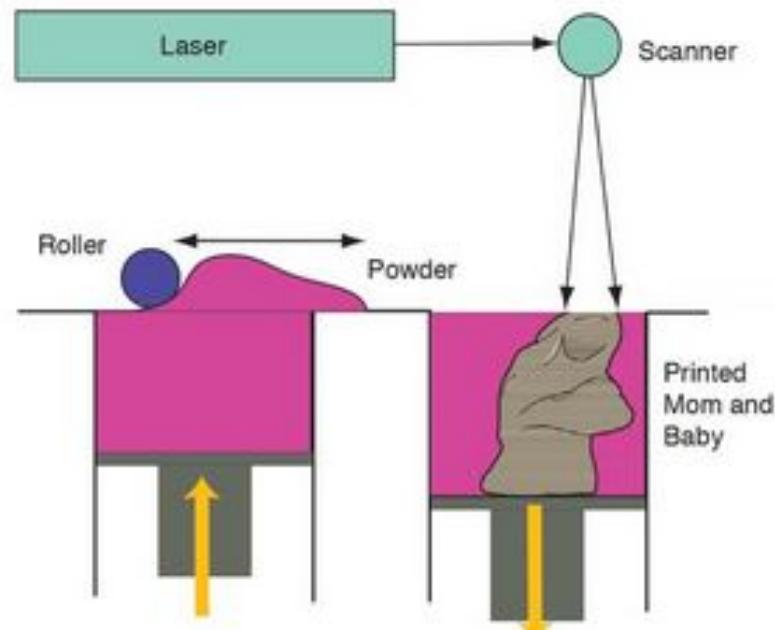
Toepassingen:

- medisch
- juwelen
- fijne objecten
- board game figuren

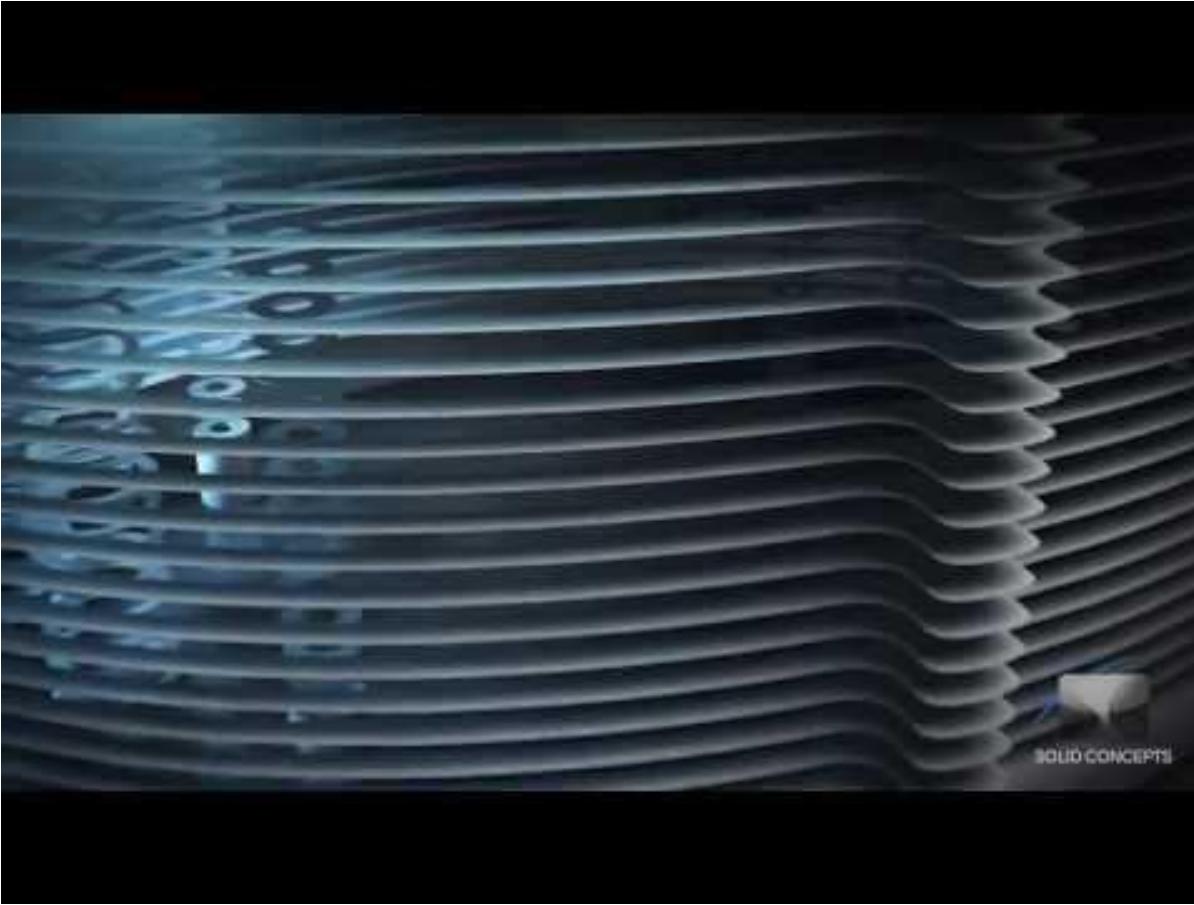


SLS

Selective Laser sintering



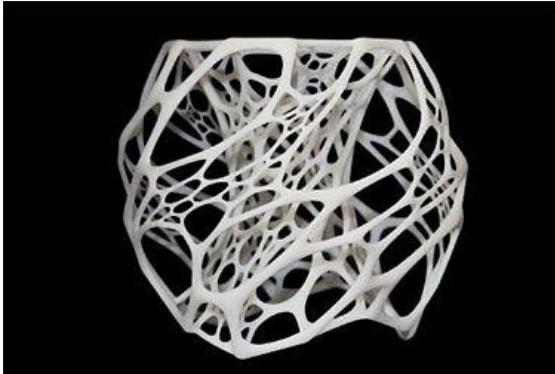
SLS



SLS

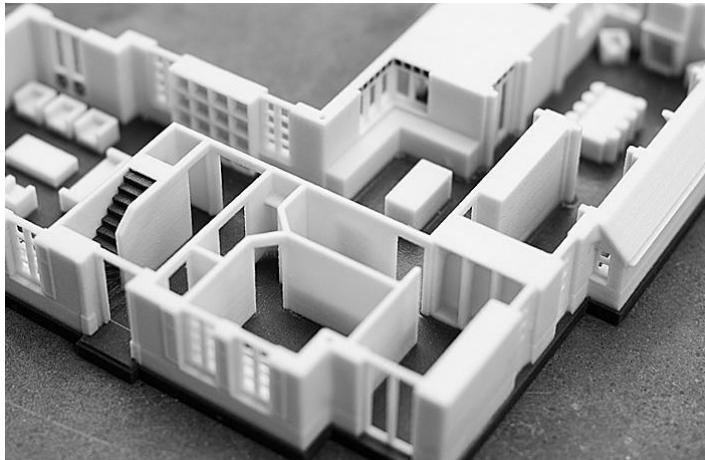
toepassingen:

- staal
- titaan
- nylon



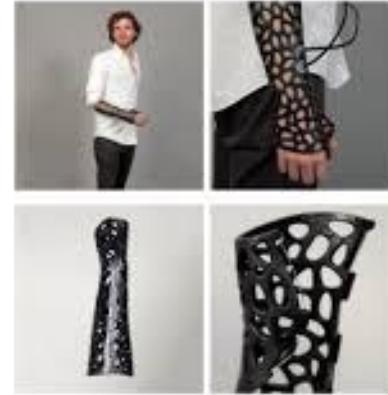
TOEPASSINGEN

architectuur



TOEPASSINGEN

PROTHESES/MEDISCHE SECTOR



TOEPASSINGEN



PROTOTYPING

TOEPASSINGEN



HOBBY

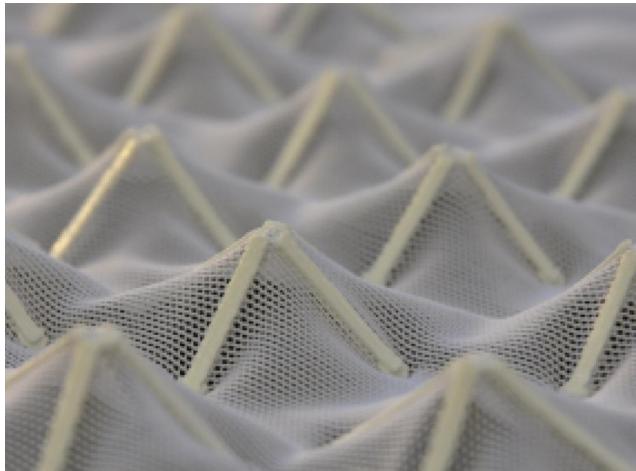
TOEPASSINGEN

UNIEKE STUKKEN / KUNST



toepassingen

MODE EN TEXTIEL





PRINTABLE FILES

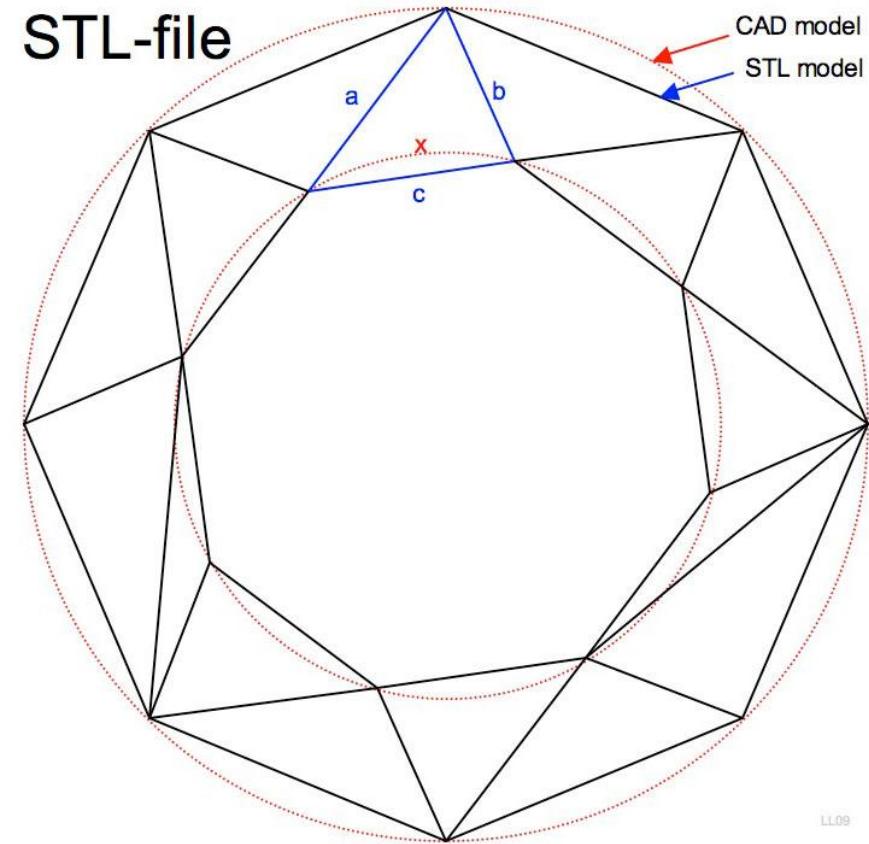
FILES : STL

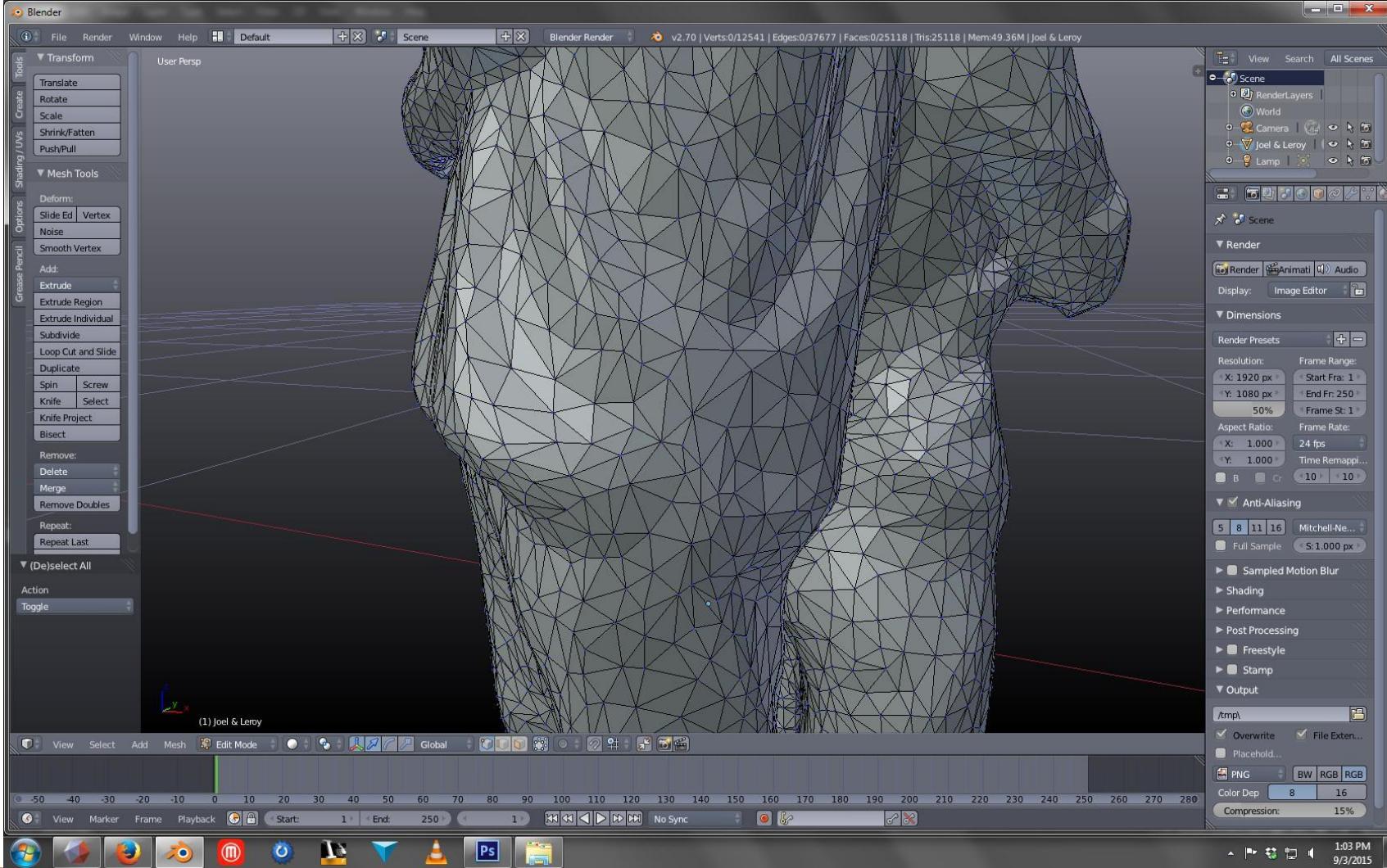
STL staat voor:

Surface Tessellation Language

Een STL een een geometrische benadering van van een 3D object opgebouwd uit driehoeken.

STL-file





PRINTABLE FILES

1: BESTAANDE FILES DOWNLOADEN

Op sites zoals:

- thingiverse
- 3Dker
- MyminiFactory
- Youmagine

2: ZELF ONTWERPEN.

CAD TEKENING

(Computer-aided design)

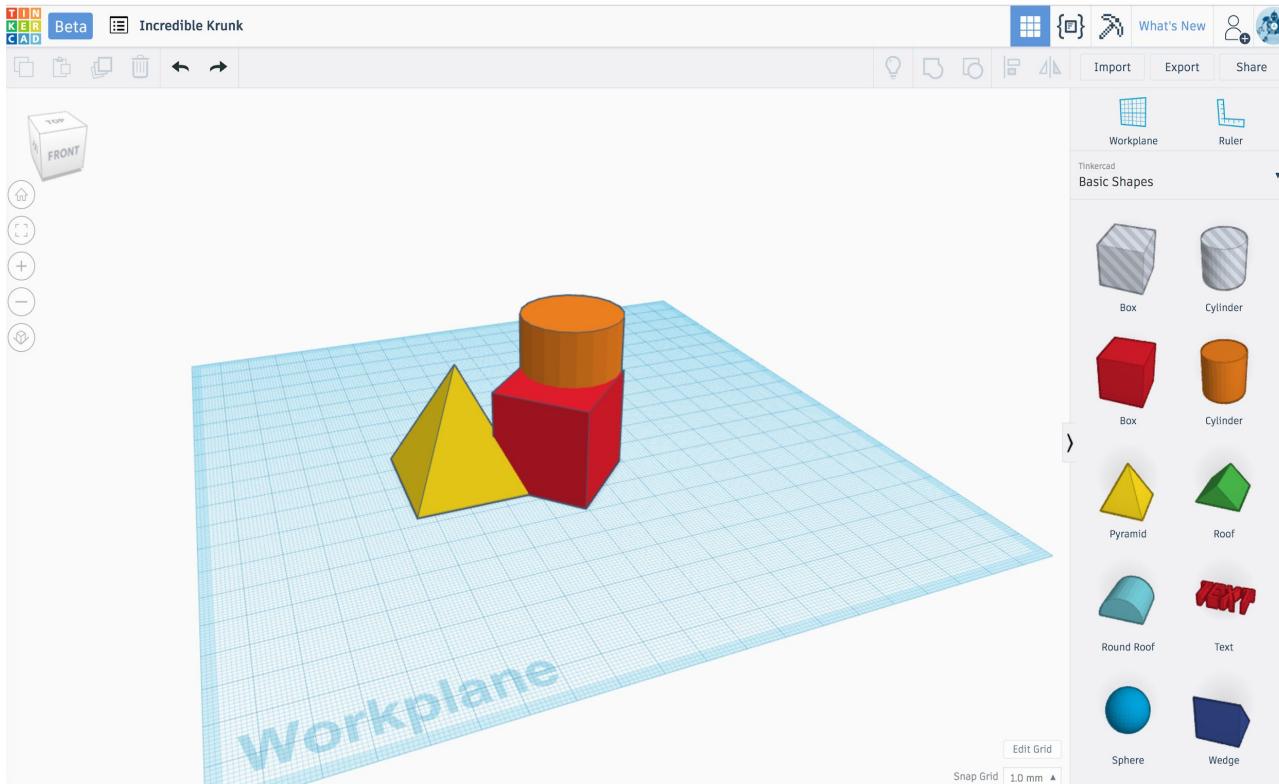
TINKERCAD

Pro:

- gratis
- makkelijk in gebruik
- online
- cloud

con:

- beperkte mogelijkheden
- weinig vormvrijheid
-



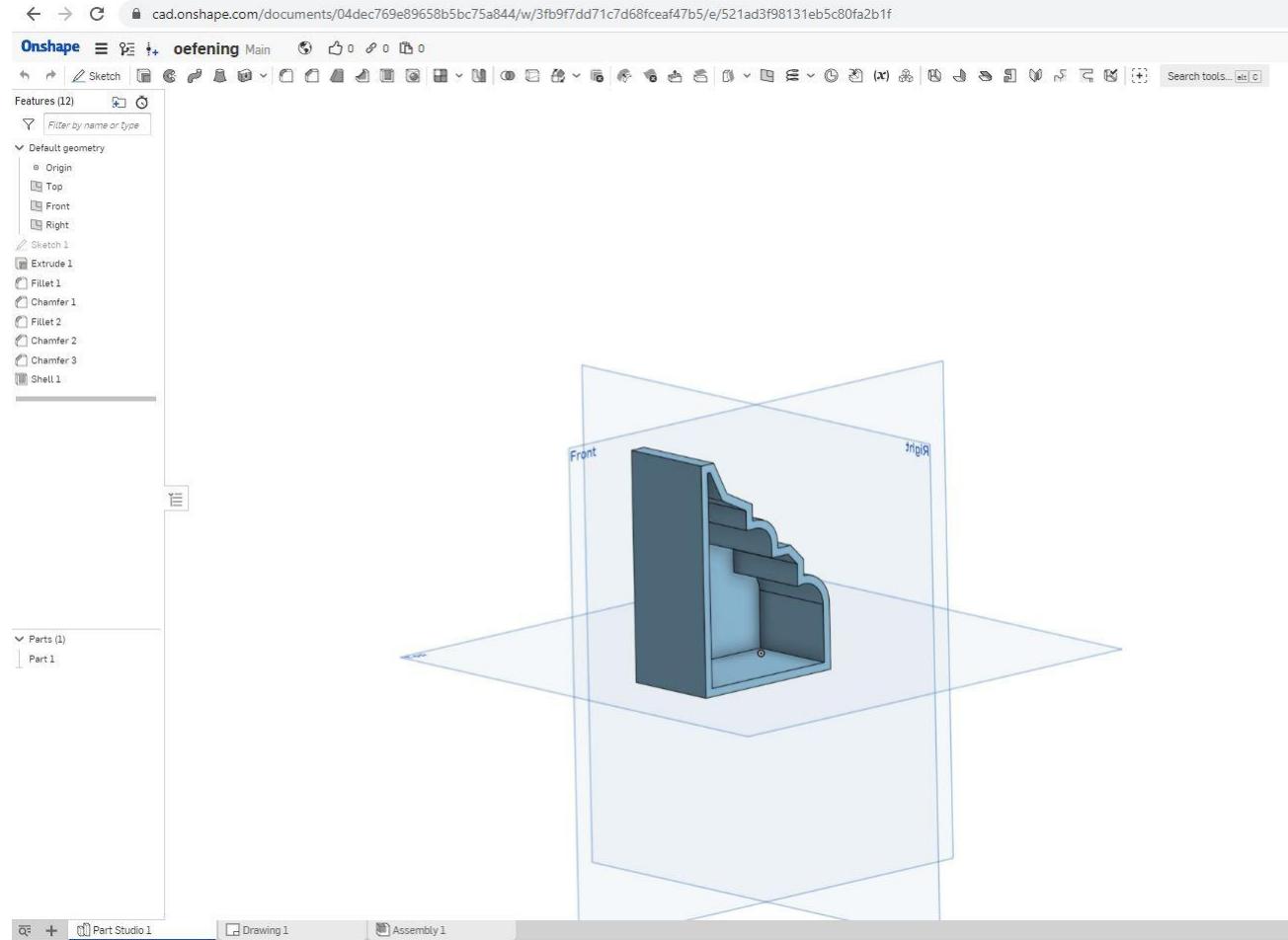
ONSHAPE

Pro:

- gratis
- online
- cloud
- technisch
- veel mogelijkheden

Con:

- openbaar
- langer leerproces.
-



BLENDER

Pro:

- gratis
- vormgeeflijk
- veel mogelijkheden

-

Con:

- lang leerproces
- zwaar programma

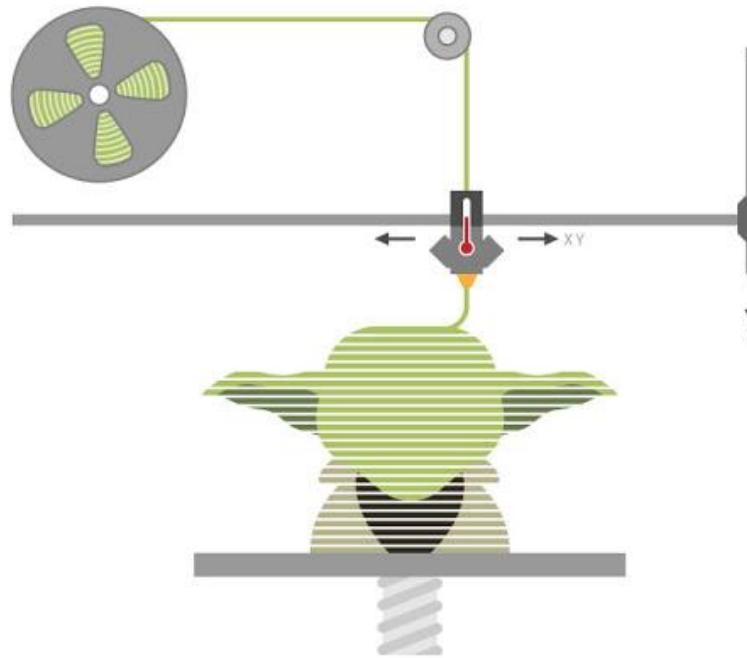
-



2: 3D SCANNEN.

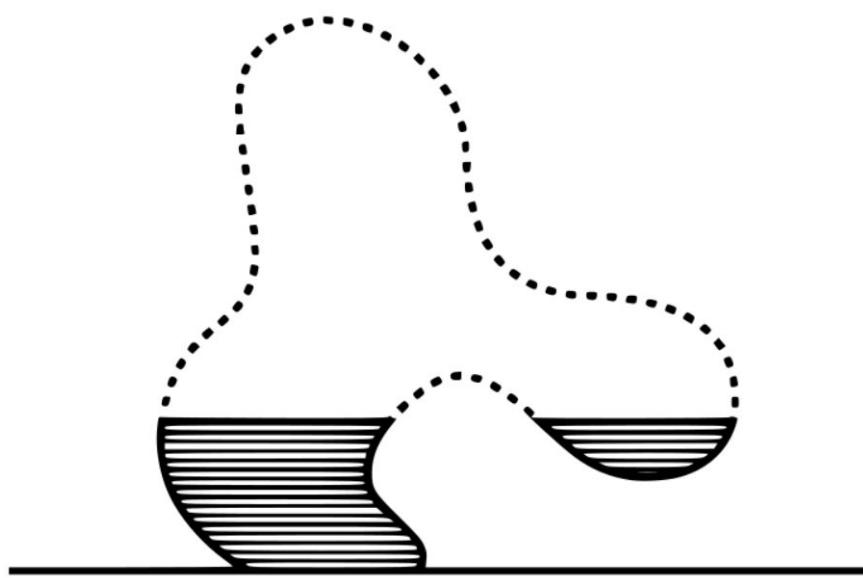


Focus FDM

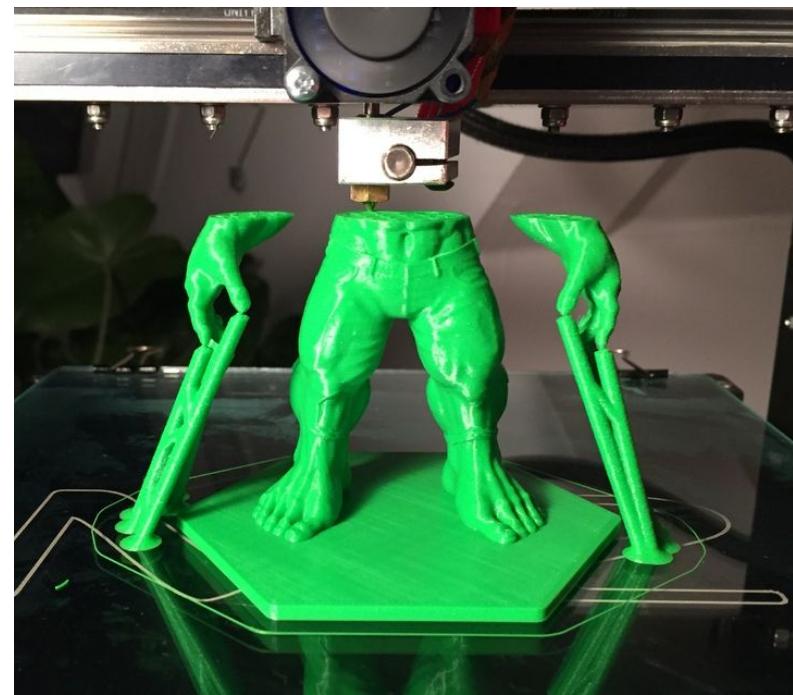
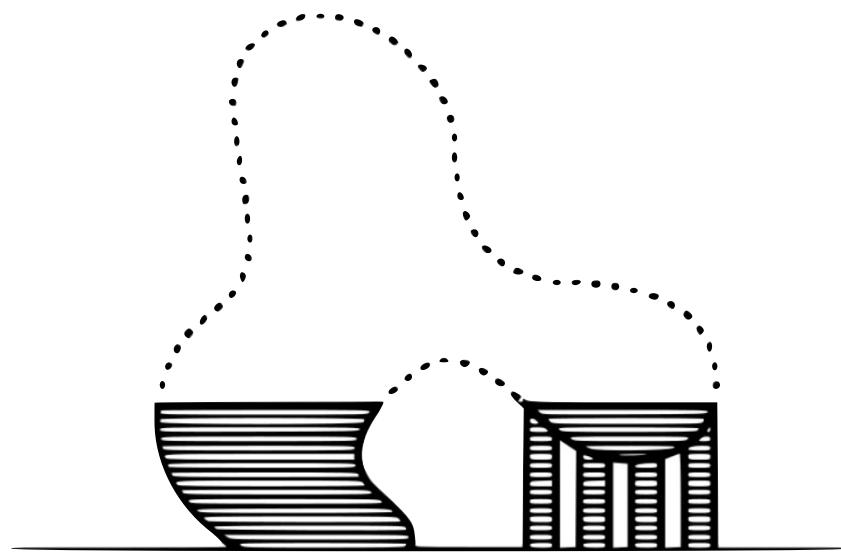


ONTWERPREGELS

probleem: zwevende onderdelen



OPLOSSING 1 : SUPPORT



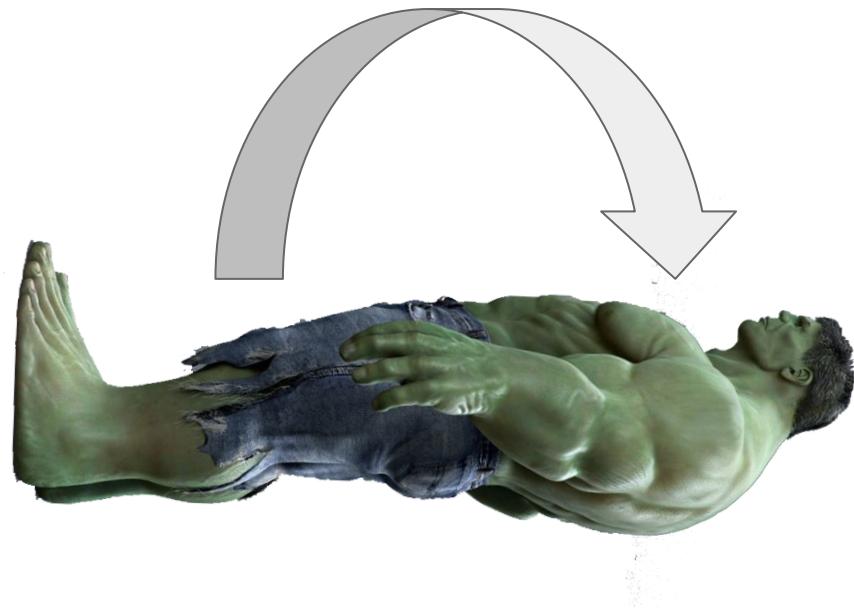
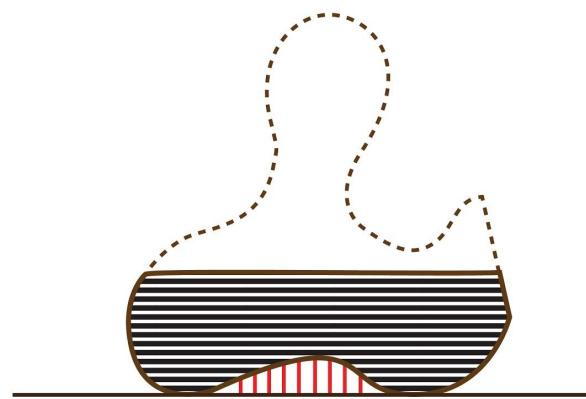
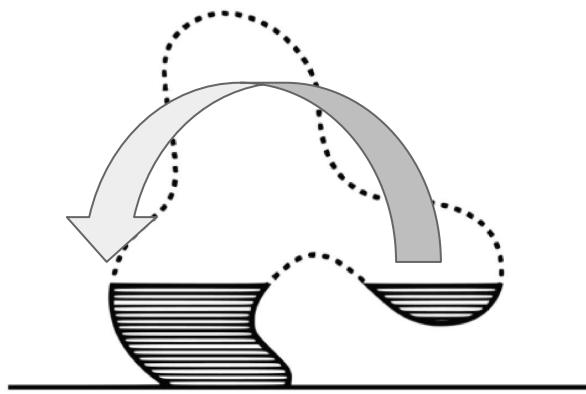
SUPPORT

- kost tijd en geld
- Meer kans op printfouten
- minder goede afwerking

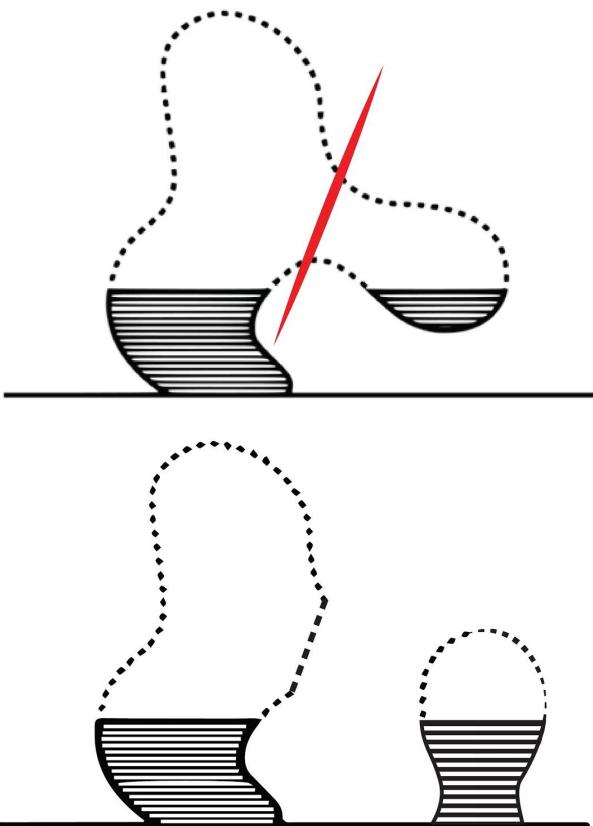


Design by [mold3d](#)

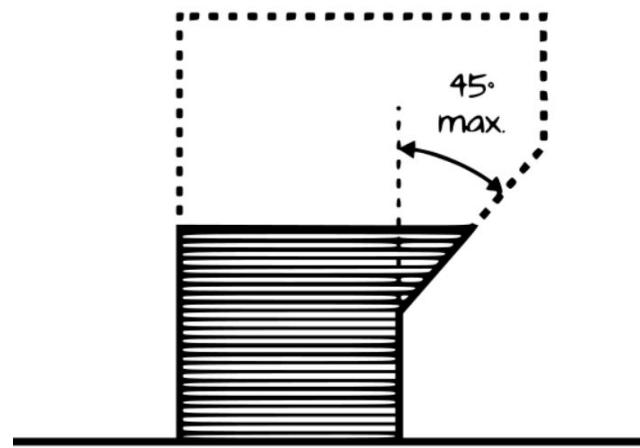
OPLOSSING 2 : OBJECT ROTEREN OP HET PRINTBED.



OPLOSSING 3 : OBJECT IN VERSCHILLENDEN ONDERDELEN OPDELEN .



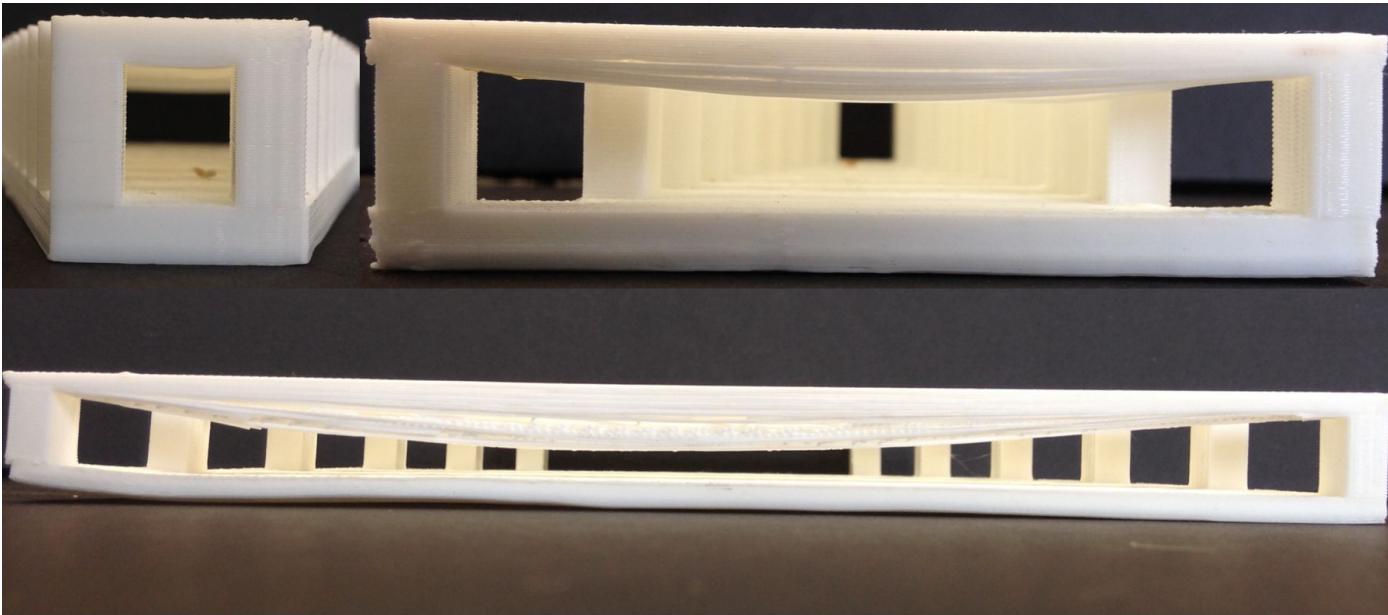
OPLOSSING 4 : OBJECT ZODANIG ONTWERPEN DAT ER GEEN OVERHANG IS.

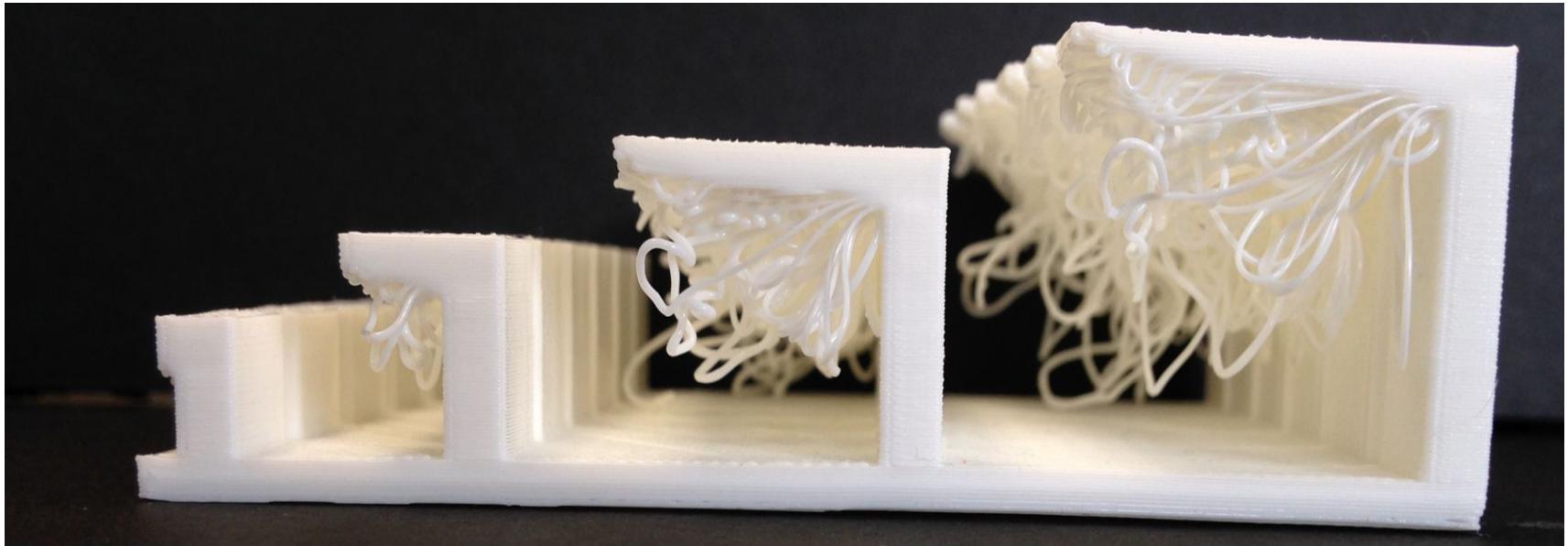


YHT REGEL



- **Y vorm:** Helling vanaf **45 graden** geeft geen problemen.
- **H vorm: middenstuk tussen de 2 benen = brug.**
Bruggen langer dan 36mm vertonen *dropping*.
- **T vorm:** heeft geen ondersteuning en zal fouten genereren

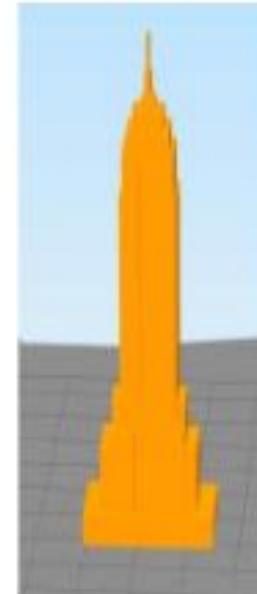
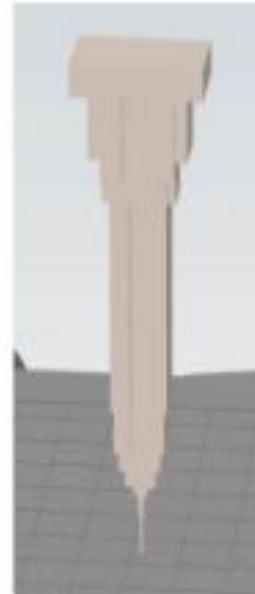
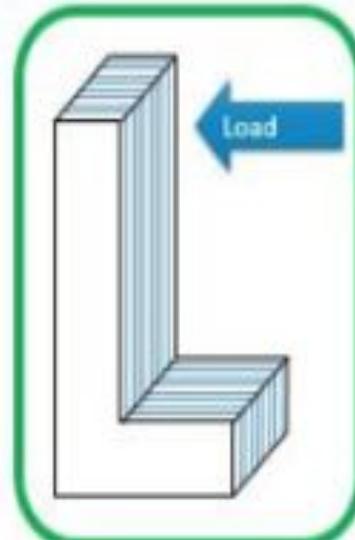
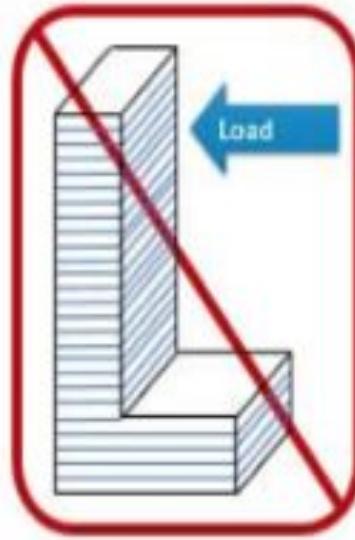




Failed Horizontal Overhangs

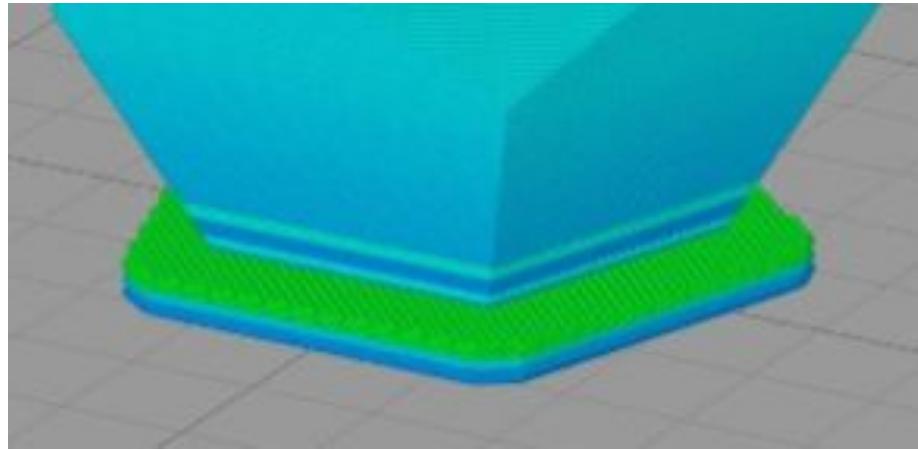
TIPS AND TRICKS BIJ HET PRINTEN

ORIËNTATIE VAN DE PRINT

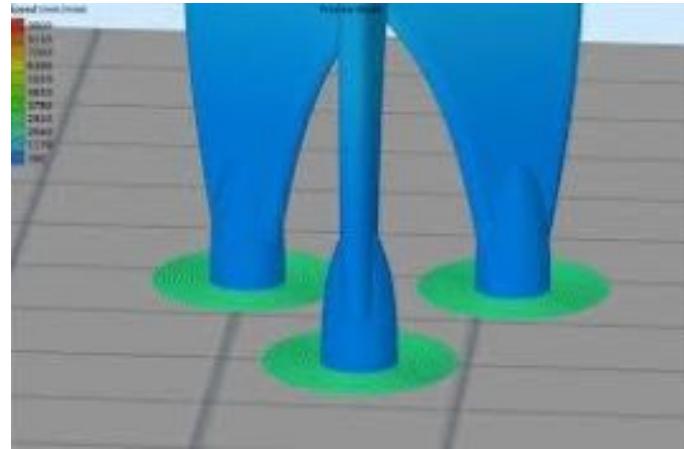


TIPS AND TRICKS BIJ HET PRINTEN

BED ADHESION



RAFT



BRIM

TIPS AND TRICKS BIJ HET PRINTEN

PARAMETERS : LAAGHOOGTE

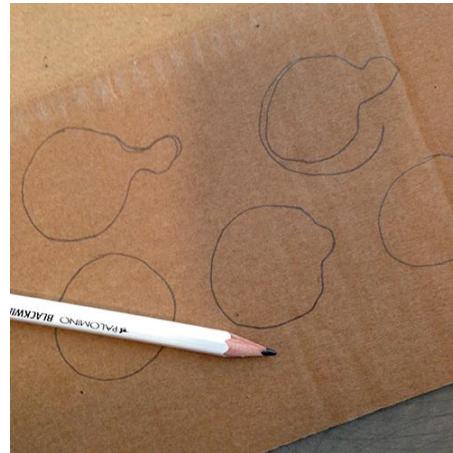
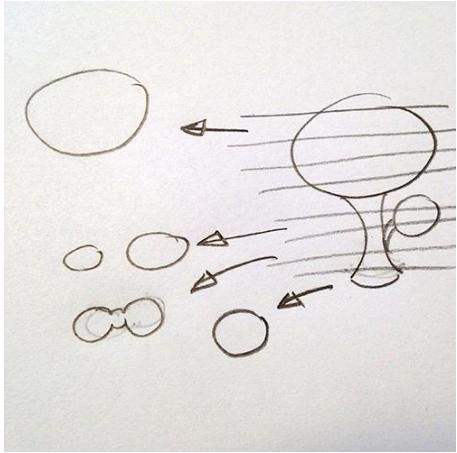


TIPS AND TRICKS BIJ HET PRINTEN

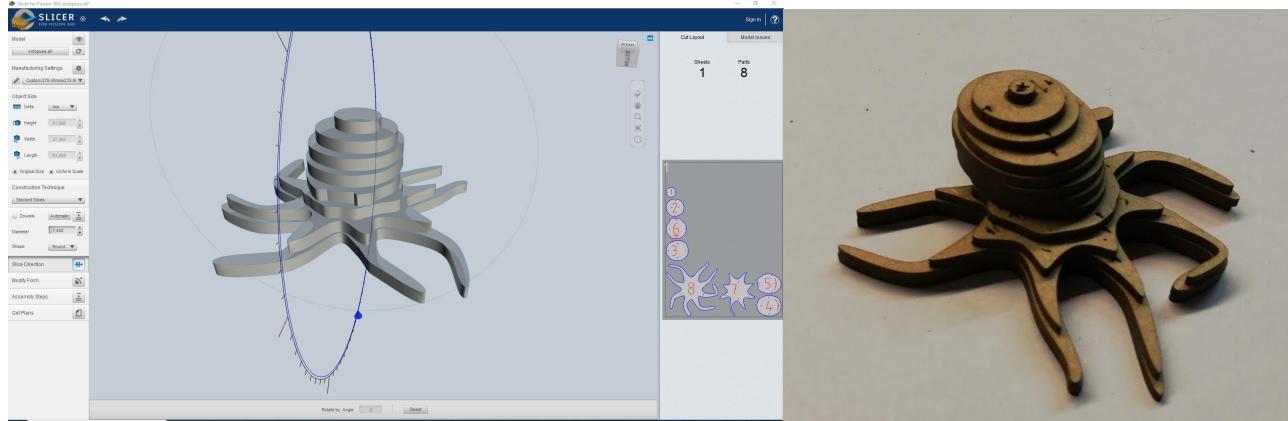
VULLING



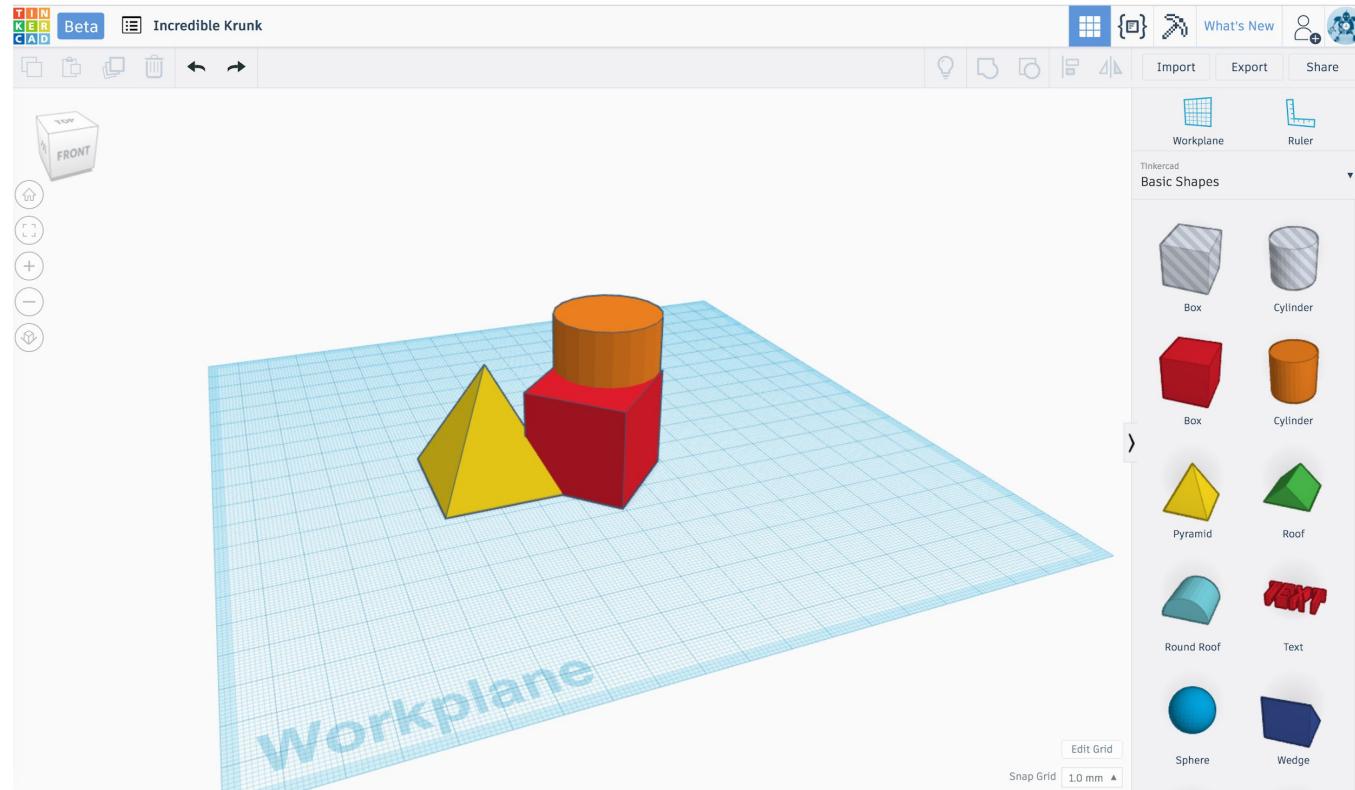
OEFENING.



SLICER FOR FUSION



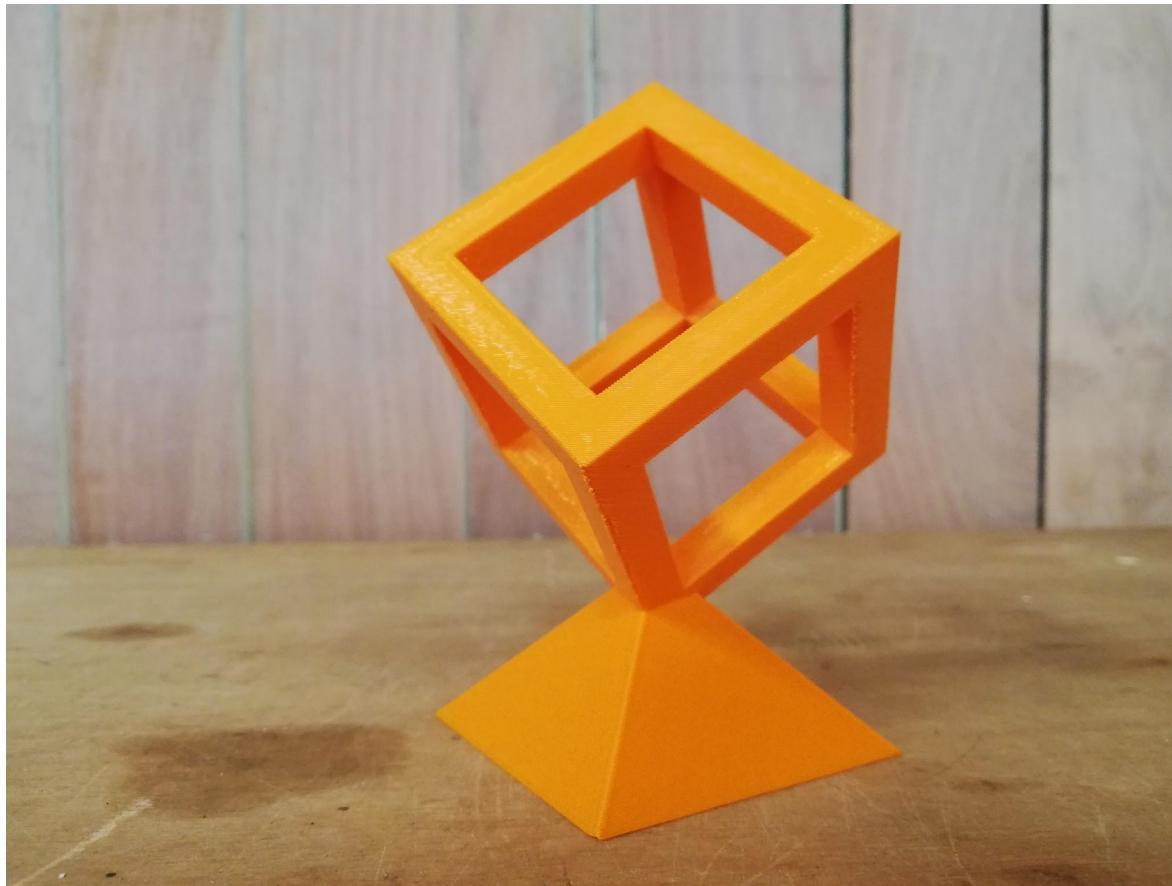
start tinkering



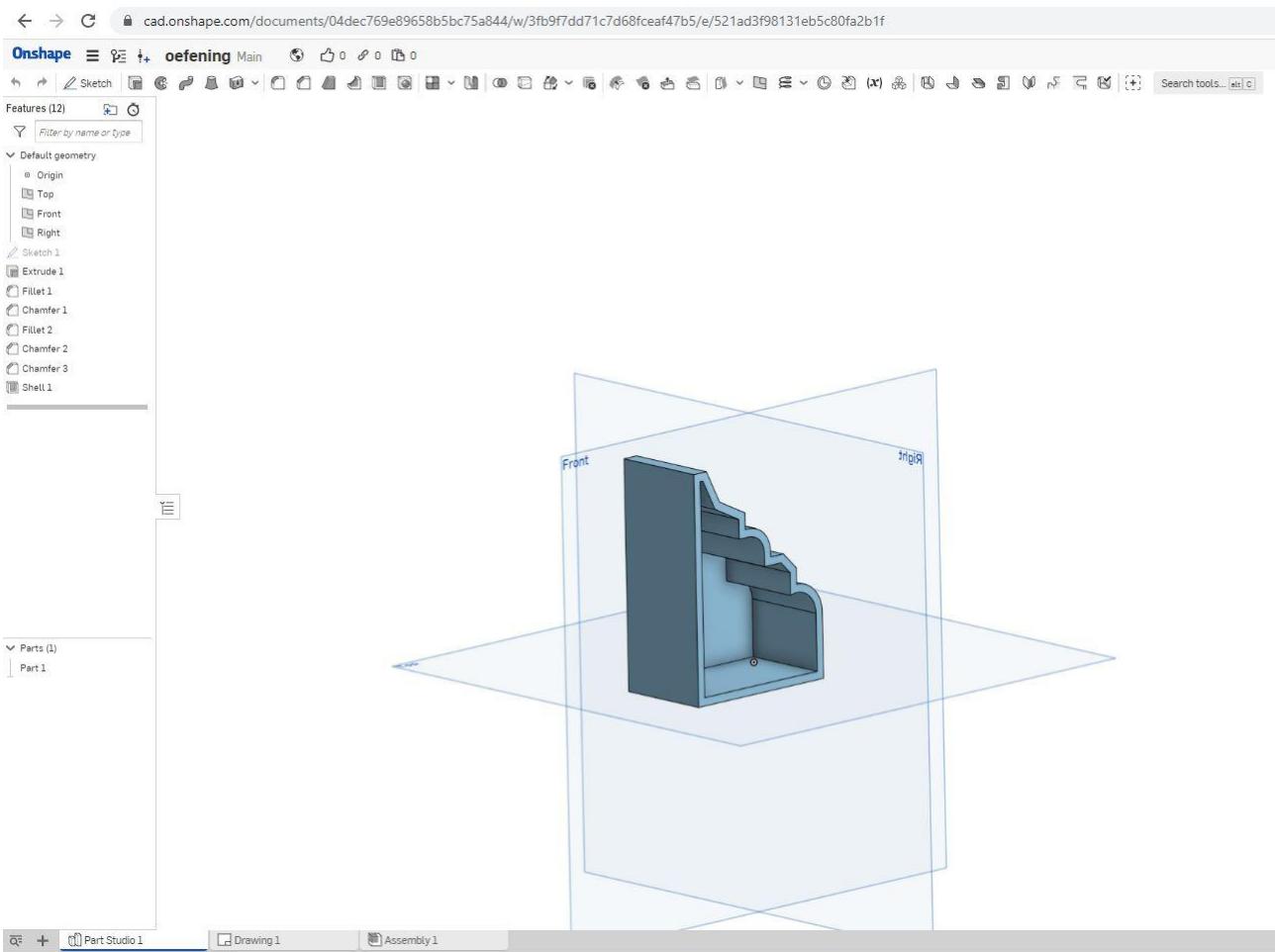
LINK HANDLEIDING

<https://maakbib.be/tinkercad-handleiding-01/>

OEFENING 2



OEFENING 3 : ONSHAPE





extra info :

[https://maakbib.be/wistjedat/2020-01-20-DYK-
3D-printen/](https://maakbib.be/wistjedat/2020-01-20-DYK-3D-printen/)



