

Westerdals

Introduction to 3D modelling

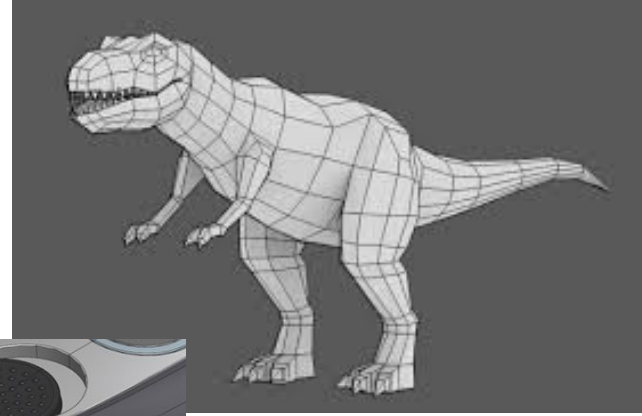
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What is 3D modelling?

Practice:

- CGI
- Design
- Engineering
- DIY 3D printing...



What is 3D modelling?

Theory:

0 Dimensions = No distance

= A point



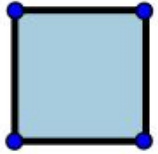
1 Dimension = Length

= A line

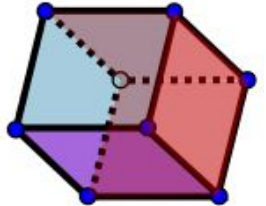


2 Dimensions = Length and width

= A square



3 Dimensions = Width, length and thickness = A cube

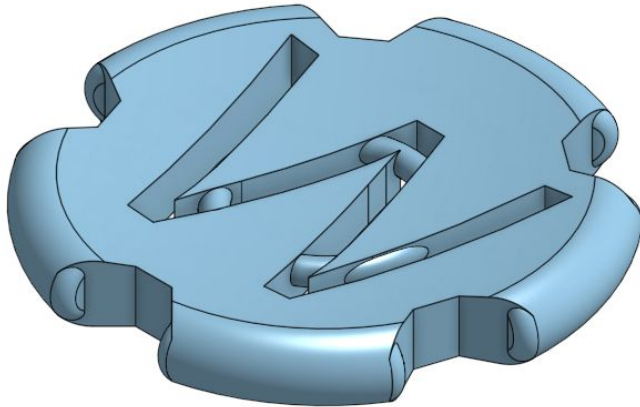


Task: Design a makercoin and print it

Try at least one modelling program

Design at least one makercoin (Diameter ca 40 mm, max height 15 mm)

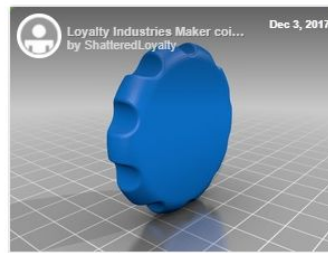
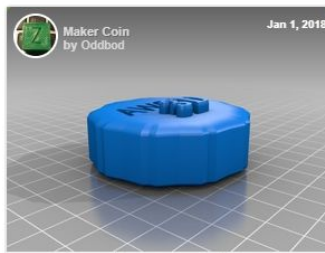
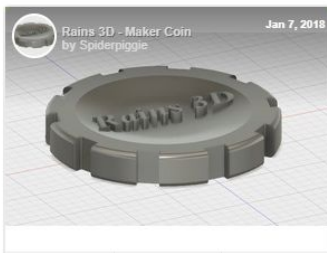
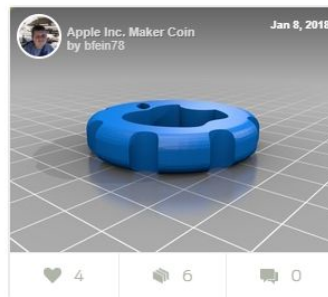
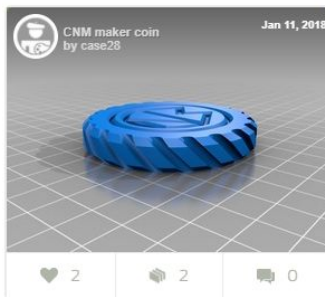
Add some interesting features of your choice, using patterns, flat and round details.



Makercoins!

https://www.thingiverse.com/tag:Maker_Coin/page:1

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Different tools for different tasks

Tinkercad

Primitives modeling

Onshape

Parametric CAD light

Fusion360

Parametric CAD full

Others:

Sculptris

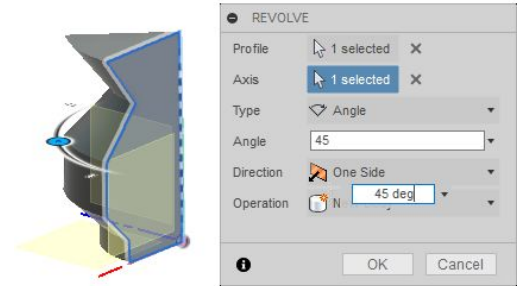
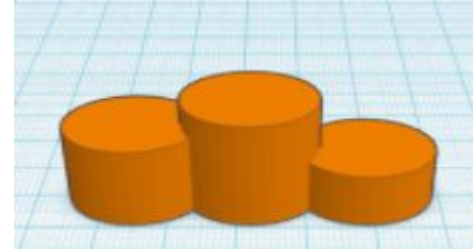
Digital clay sculpting

Sketchup

Buggy and too basic

Blender

Full CGI suite



Recommended equipment

Pen and paper

Mouse

Headphones



CAD Terminology

Workplane, origo

Sketch, line, dimension

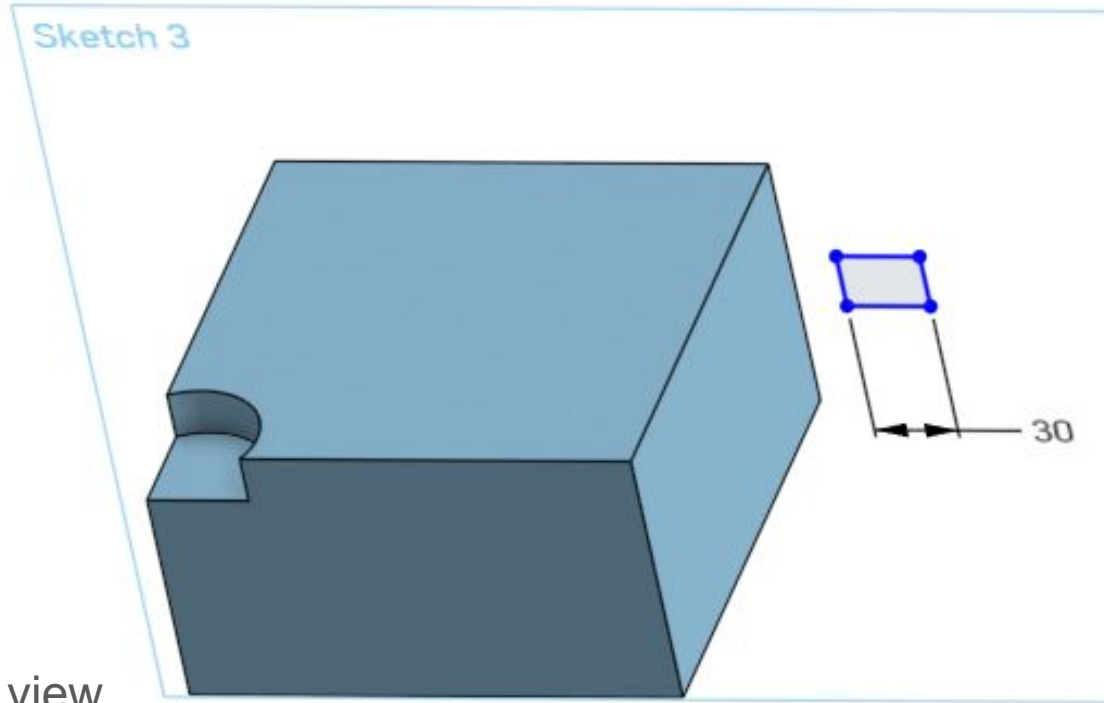
Relation or constraint

Profile

Feature

Body, face, edge, vertex

Orthographic view and perspective view



Modelling concepts

<https://www.youtube.com/watch?v=ouvf-4wciak>



Resources

Tinkercad

Get and try

Good built in beginner guides, do them!

How to make a maker coin

How to make patterns

How to make a cup

Want to do more advanced shapes?

<https://www.tinkercad.com>

<https://www.tinkercad.com/learn/projects#/learn/project-gallery:collectionId=O2C1PXB1Q2KHCO>

<https://www.youtube.com/watch?v=zifrdN4Yuds>

<https://www.youtube.com/watch?v=HBIJYIUM3r4>

<https://www.youtube.com/watch?v=HeTqjwfGJgU>

<https://www.youtube.com/watch?v=HyYeR76vEzE>

Onshape

Get and try

How to make a maker coin

<https://www.onshape.com/>

<https://www.youtube.com/watch?v=wSBL0hIFz6s>

Fusion360

Get and try

How to make a maker coin

How to make a maker coin

fusion360.autodesk.com

https://www.youtube.com/watch?v=Kv1xYpV_yS4&t=11s

<https://www.youtube.com/watch?v=tGtNLpYSXOU>

Scuptris *Not needed for makercoin-week!*

Get and try

Learn how to sculpt

pixologic.com/sculpttris/

<https://www.youtube.com/watch?v=OqoA9hFyNI4>

Task: Design a makercoin and print it

Try at least one of Tinkercad, Onshape or Fusion360.

Design at least one makercoin (Diameter ca 40 mm, max height 15 mm)

Add some interesting features of your choice, using patterns, flat and round details.

