3D printing technology aims students understanding maths and recycling procedure

Curricula 2: Digital Sketching
"Making 3D Shapes / Push Pull Tool"

### Output 3 (O3) – 3D Printing and Maths

Description

In this lesson we learn how to turn 2D objects into 3D. By using the Push/Pull Tool, we turn the 2D shapes we created on the previous lesson into 3D. We also learn how to cut holes into 3D objects, by utilizing the same tool.

Introduction

- The Push/Pull Tool is a very useful tool that allows us to turn 2D shapes into 3D.

- It can also be used to cut holes into 3D objects, for example cutting doors and windows into a 3D wall.
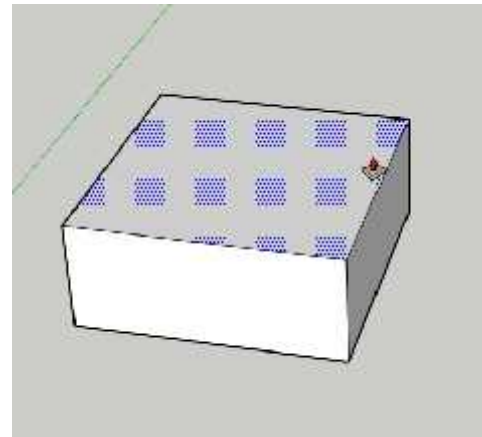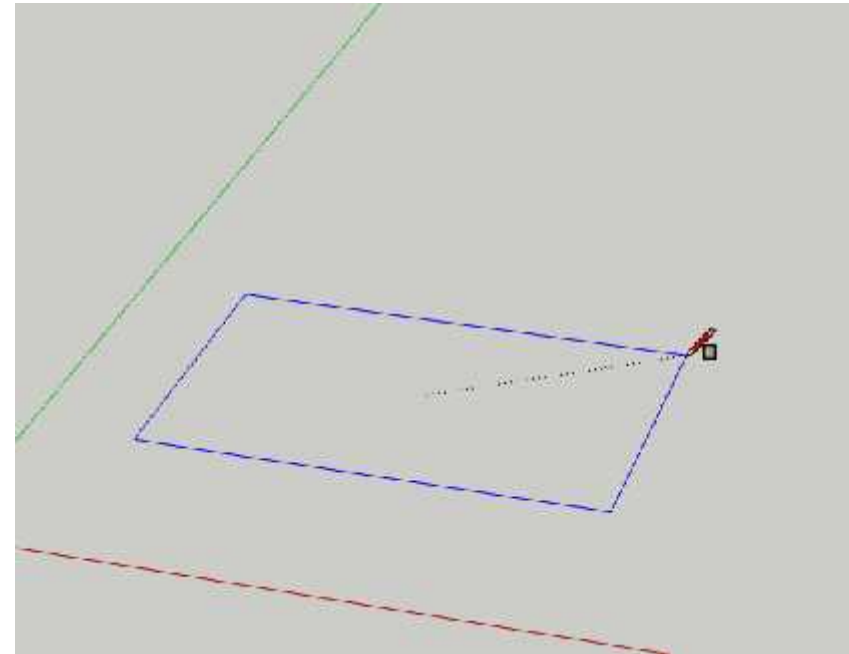
Push/Pull Tool
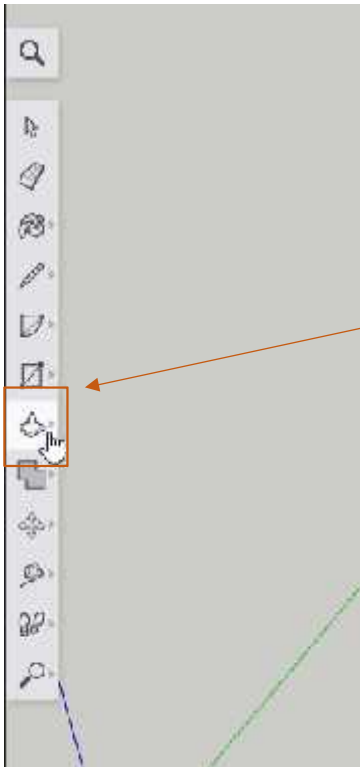
- You can find the Push/Pull tool on the left sidebar.

- To use it, click on a 2D shape and drag the mouse to make it 3D.
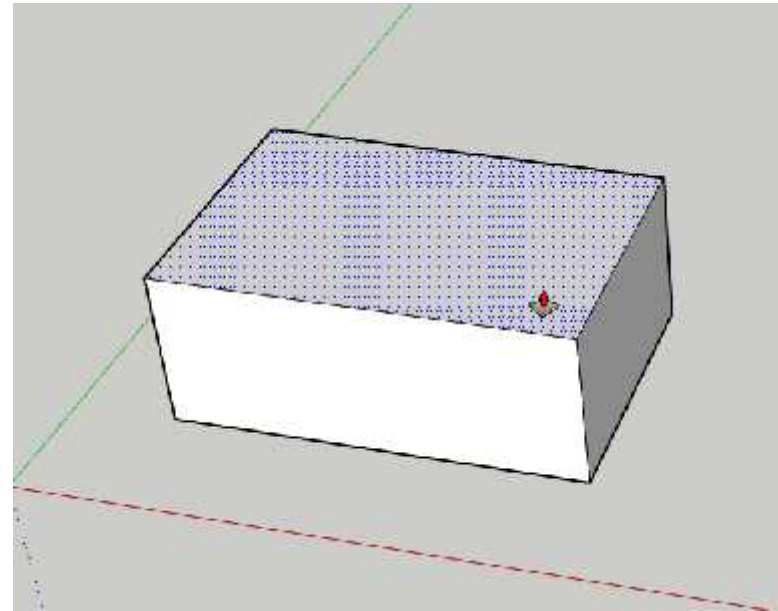
- *Lets create a Cuboid shape.*
- First, use the **Rectangle** tool to make a rectangle
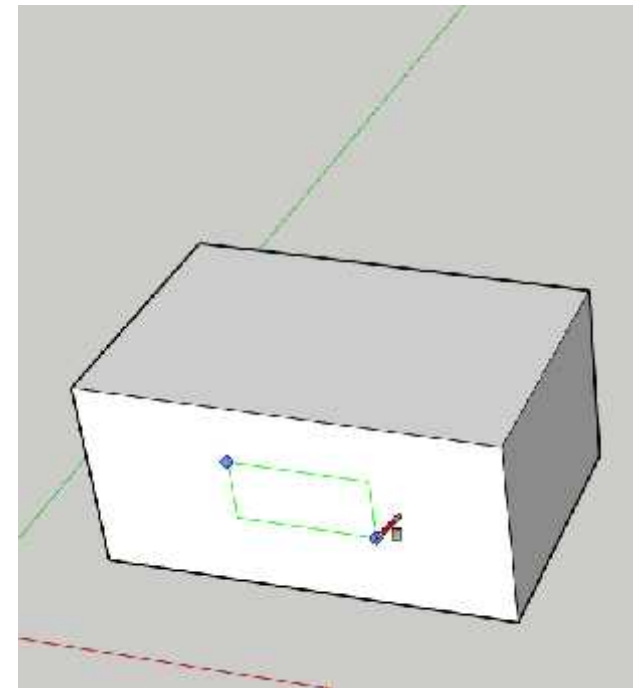
Push/Pull Tool – Making a Hexahedron (2/2)

- Now use the **Push/Pull** tool to extrude the shape to the 3rd dimension.

- Our Hexahedron is ready!
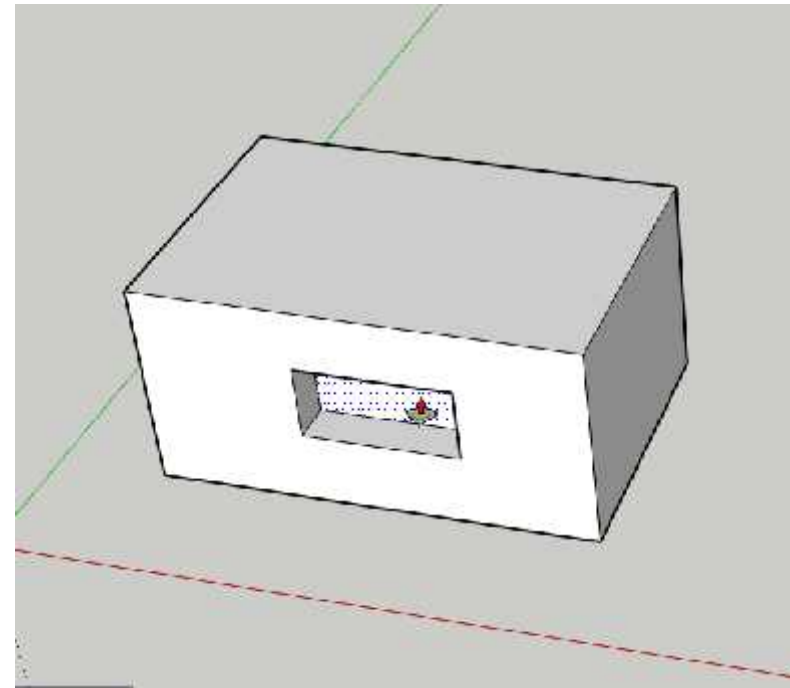
Push/Pull Tool – Cutting Holes (1/2)

- Now lets use the **Push/Pull** tool to cut a hole to the object.

- Equip the **Rectangle** tool again and draw a rectangle on any surface of the object.
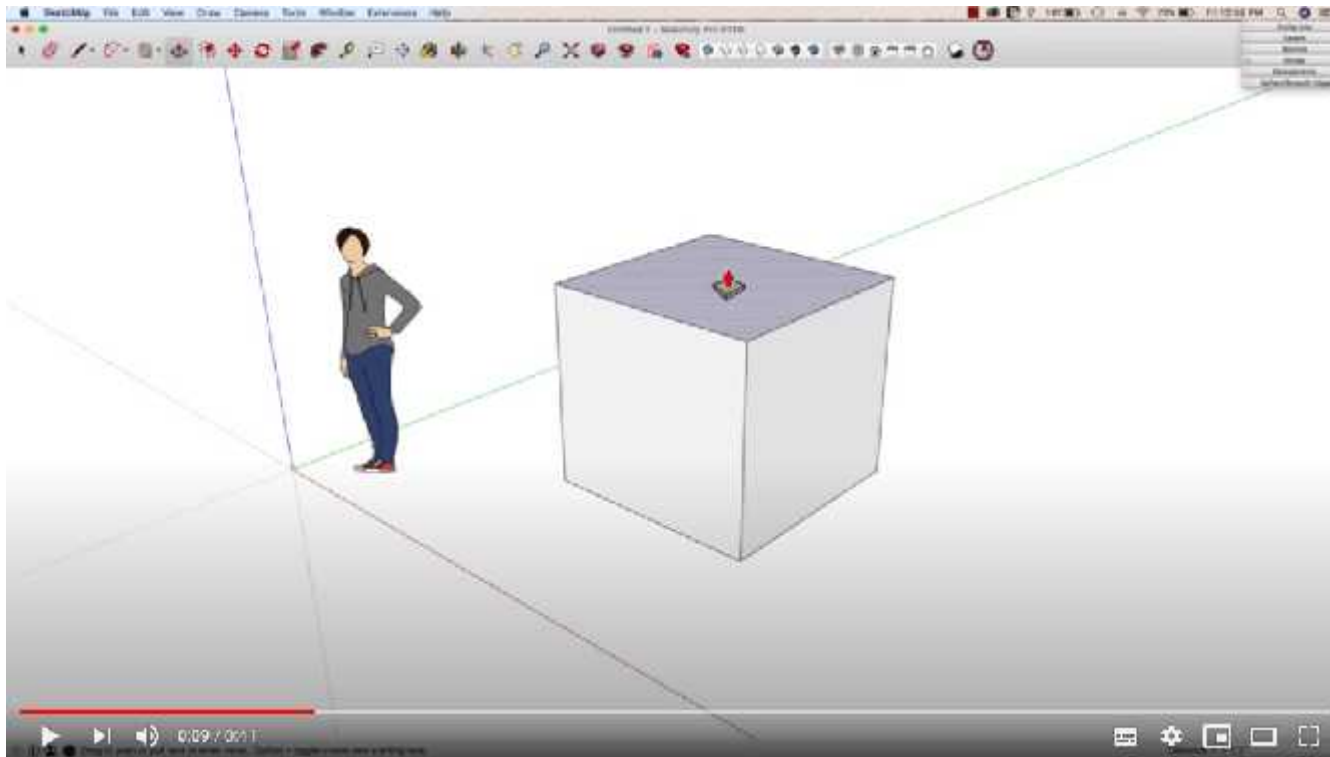
Push/Pull Tool – Cutting Holes (2/2)

- Now equip the **Push/Pull** tool again.

- Click on the Rectangle we created on the previous step and push it inwards to create a hole.

Push/Pull Tool

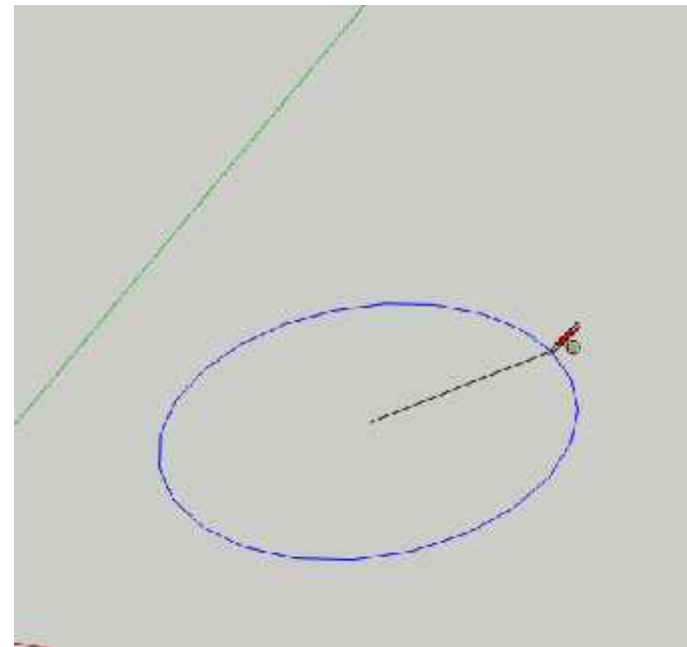https://www.youtube.com/watch?v=ef9FGow1jKY
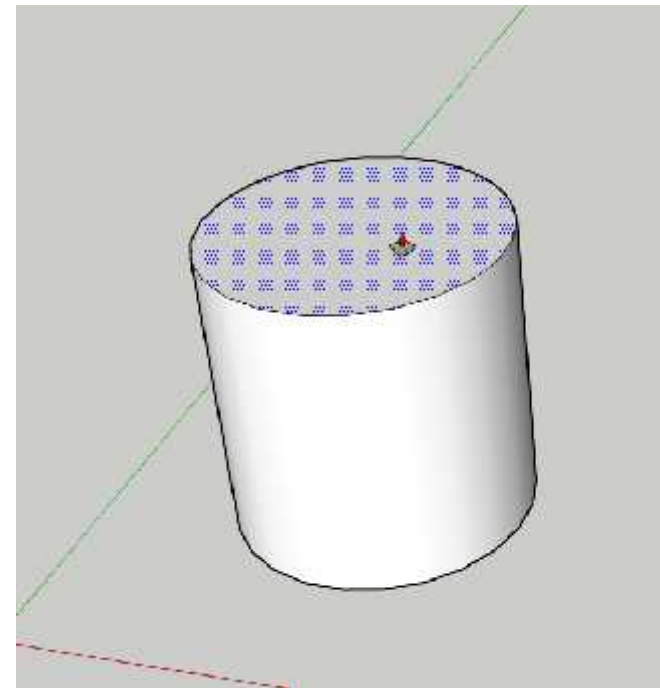Youtube. SketchUp. "Push/Pull Tip in SketchUp". 2018

Push/Pull Tool – Making a Cylinder (1/2)

- Let's make more 3D shapes. We will learn how to make a cylinder.
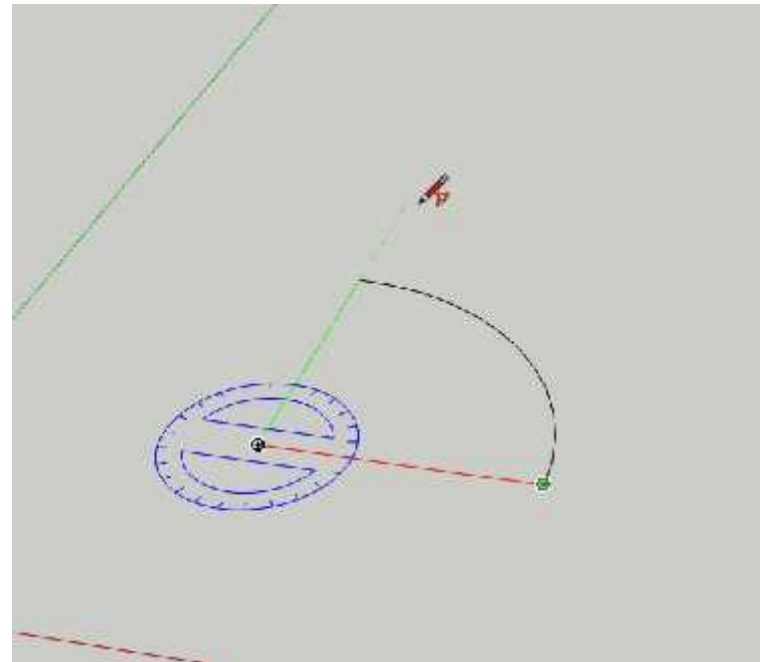
- First, equip the **Circle** tool and draw a circle.

- Now switch back to the **Push/Pull** tool.

- Click on the circle's surface and drag it upwards to create a cylinder.
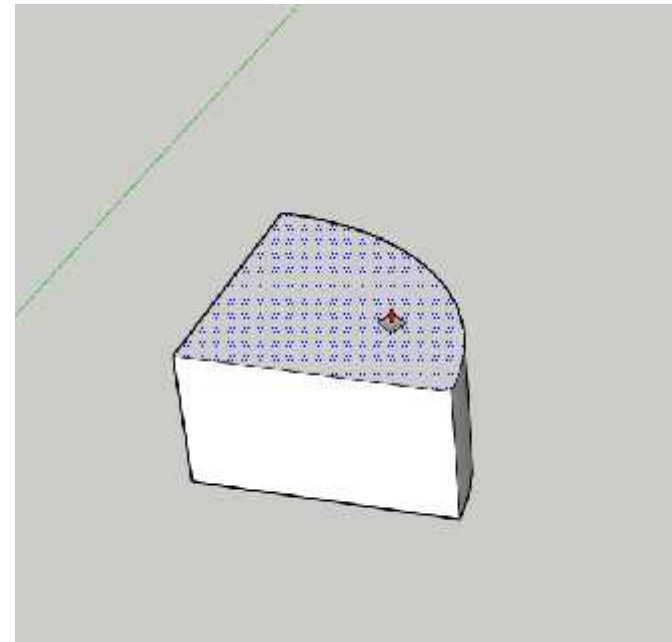
Push/Pull Tool – Making a 3D Pie (1/2)

- Let's turn the 2D Pie from the previous lesson into 3D.

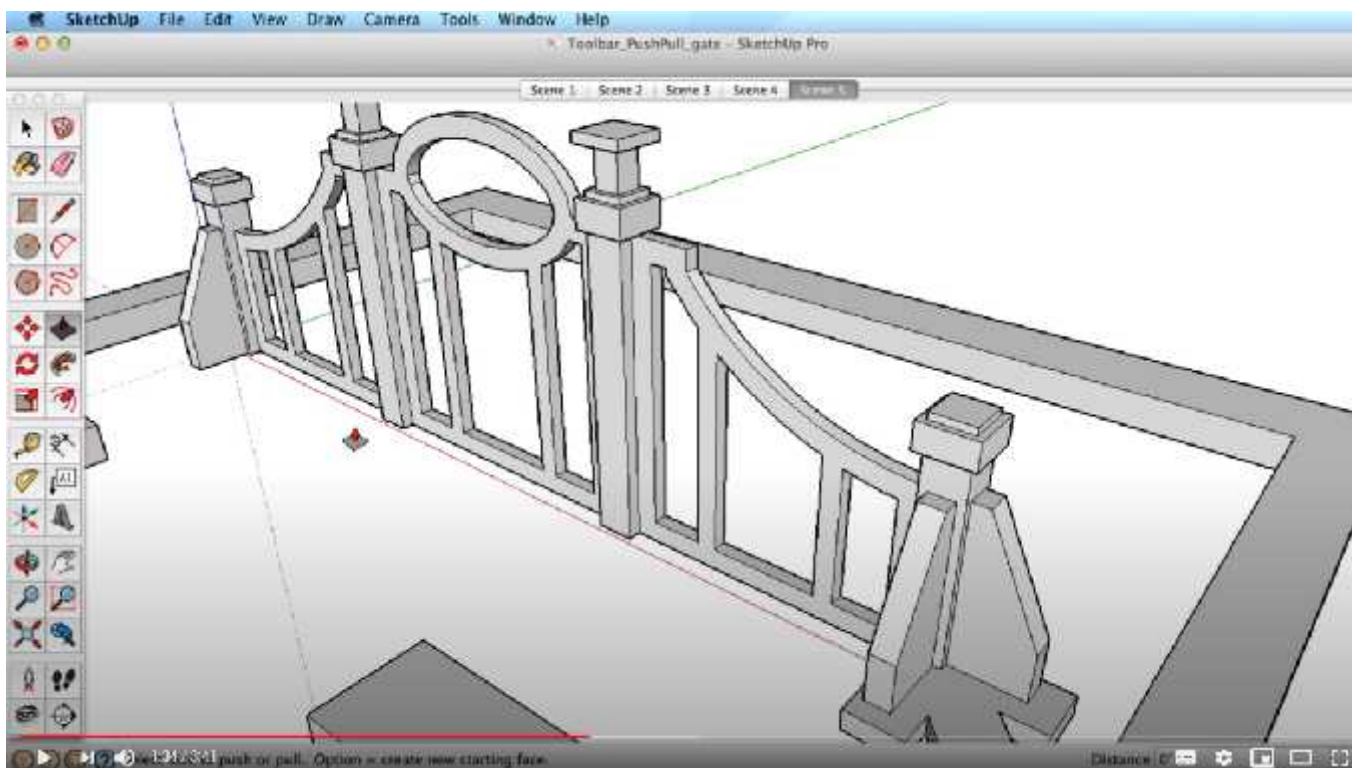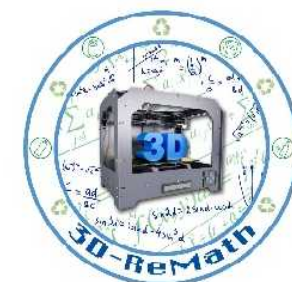- First, equip the **Pie** Arc tool and draw a pie.

Push/Pull Tool – Making a 3D Pie (2/2)

- Switch to the **Push/Pull** tool.
- Now click on the pie's surface and extrude it upwards to make it 3 dimensional.

SketchUp Training Series: Push Pull tool

https://www.youtube.com/watch?v=xTzh4KGuXzE
Youtube. SketchUp. "SketchUp Training Series: Push Pull tool". 2014

Thank you!!

privasi.aegean.gr