

UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH



WHO WE ARE



We are Oriol (right) and Roger (left), two engineering students from Barcelona who are staying in Cambodia to carry out a collaboration with Trash Is Nice, a plastic recycling station based in Phnom Penh.

Our fields of study are Physics and Artificial Intelligence respectively.

oriol.baldris@estudiantat.upc.edu
roger.vendrell.colet@estudiantat.upc.edu

CONTENTS

1

SETUP

- Access SketchUp Online
- Register for free
- Create a new project

2

BASICS

- Navigation
- Basic tools
- Alignment

3

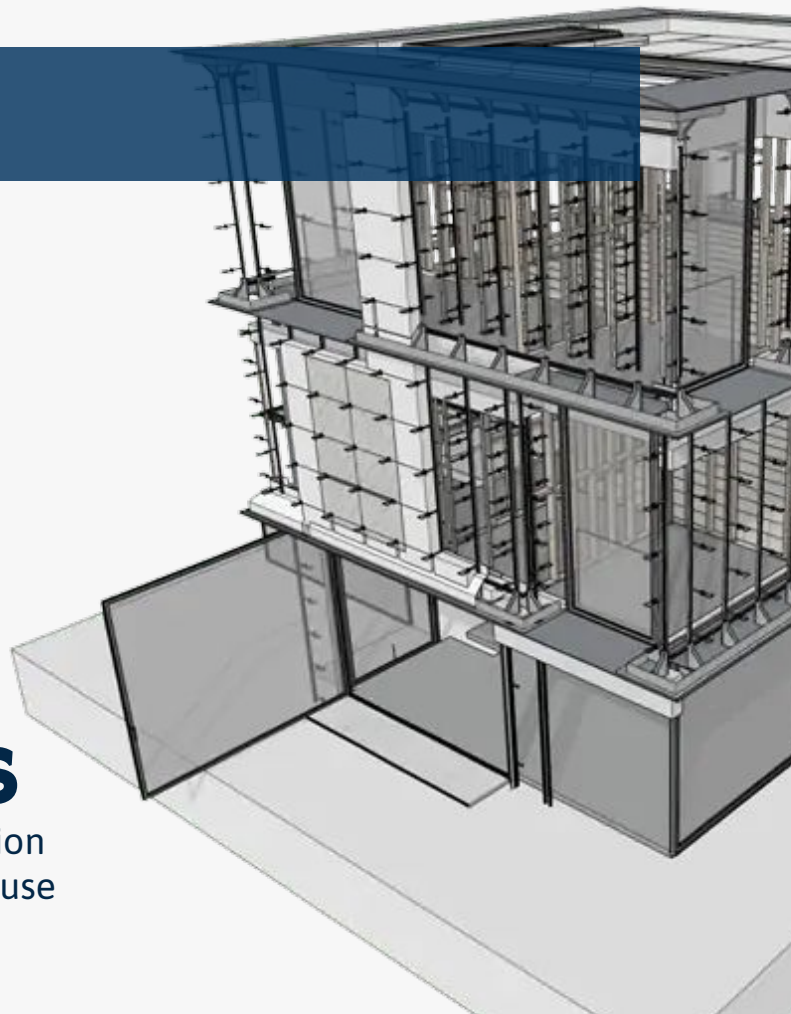
ADVANCED

- Groups and components
- “Follow Me” tool
- Meshes and terrains

4

EXTENSIONS

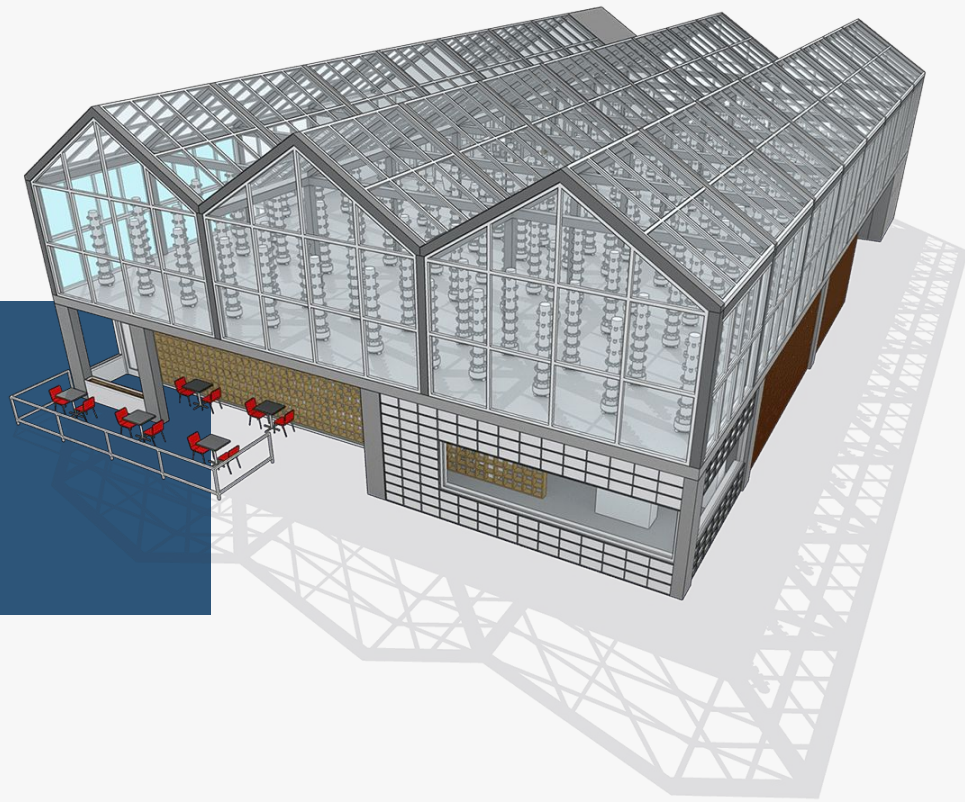
- Entity Information
- The 3D Warehouse



SETUP


SketchUp Online is the simplest free 3D modelling software on the web.

Click [here](#) to access.



Sign In with Google, Apple, Microsoft or
create your own account.




 **Trimble.**


Iniciar sesión


¿Usuario nuevo? [Crear un ID de Trimble](#)

Nombre de usuario

[Siguiente](#)

 Iniciar sesión con Google

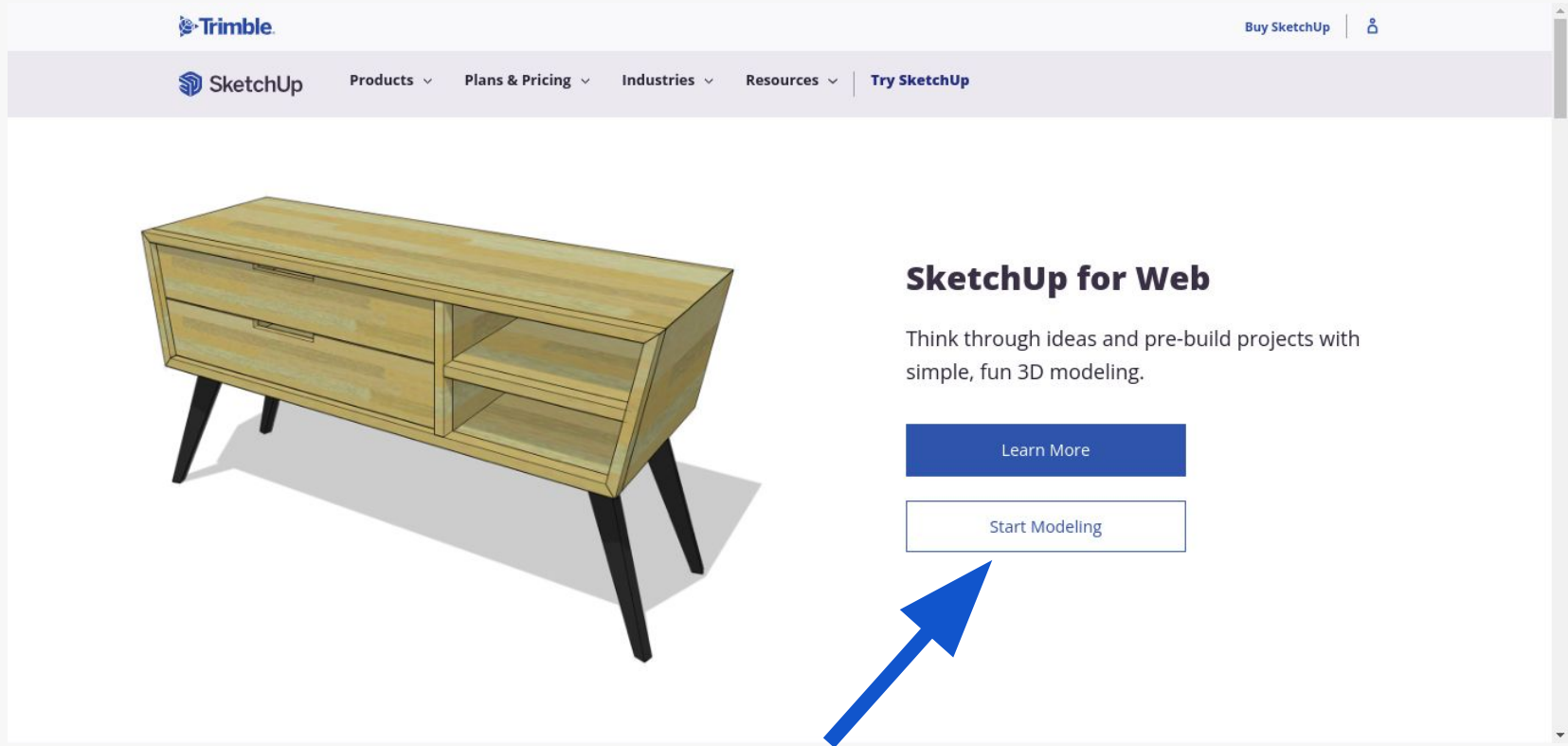
 Iniciar sesión con Apple

 Iniciar sesión con Microsoft

[Ayuda](#) | [Privacidad](#) | [Términos](#)
[No vender mi información personal](#)


© Derechos de autor 2024, Trimble Inc.

Start modelling...




The screenshot shows the SketchUp for Web website. At the top is the Trimble logo. Below it is a navigation bar with links for Products, Plans & Pricing, Industries, Resources, and Try SketchUp. The main content area features a 3D model of a wooden cabinet on the left. To the right of the model, the heading 'SketchUp for Web' is followed by the text 'Think through ideas and pre-build projects with simple, fun 3D modeling.' Below this text are two buttons: a blue 'Learn More' button and a white 'Start Modeling' button with a blue border. A large blue arrow points from the bottom left towards the 'Start Modeling' button.

Trimble

Buy SketchUp | 

SketchUp Products ▾ Plans & Pricing ▾ Industries ▾ Resources ▾ Try SketchUp



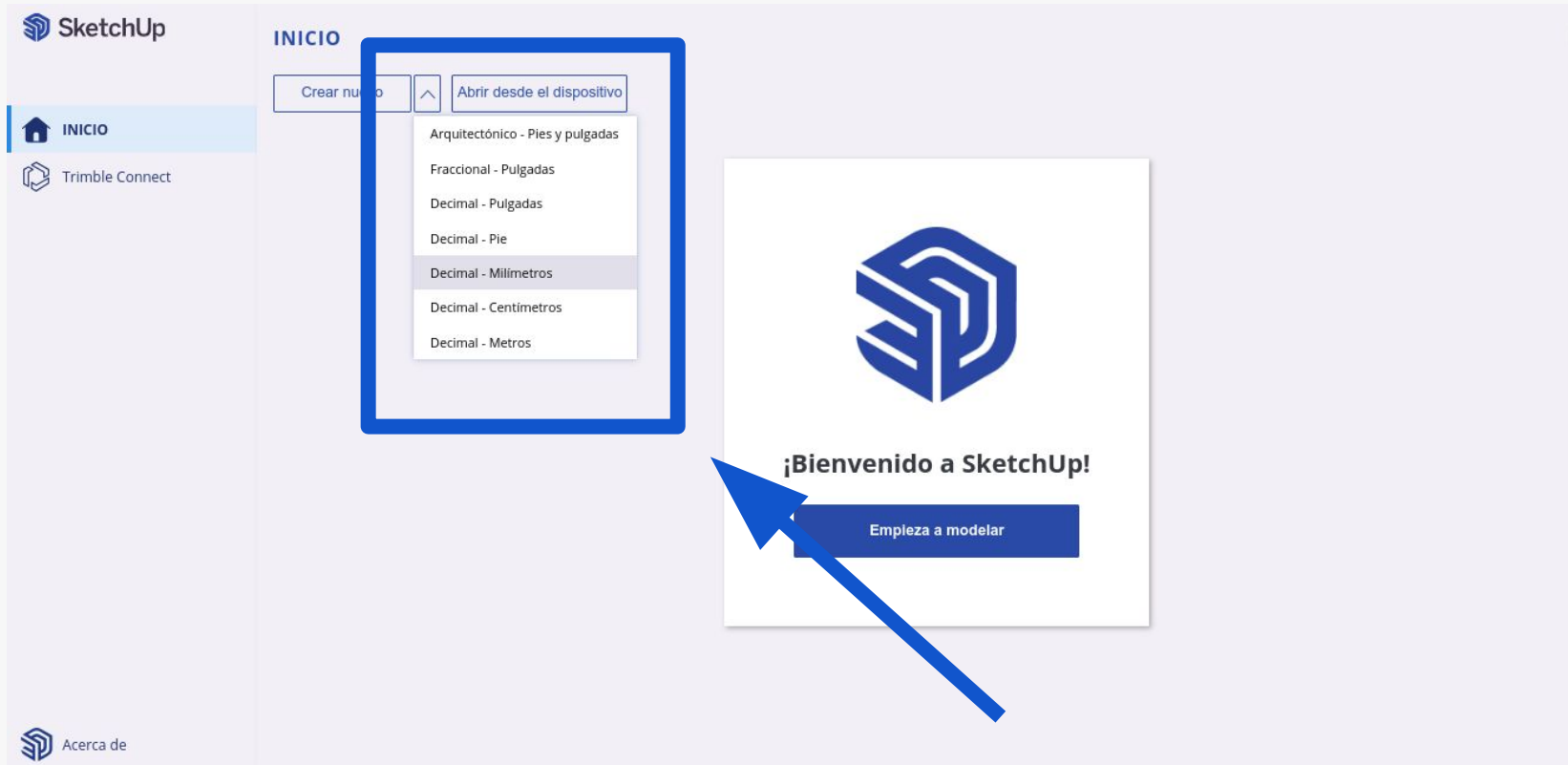
SketchUp for Web

Think through ideas and pre-build projects with simple, fun 3D modeling.

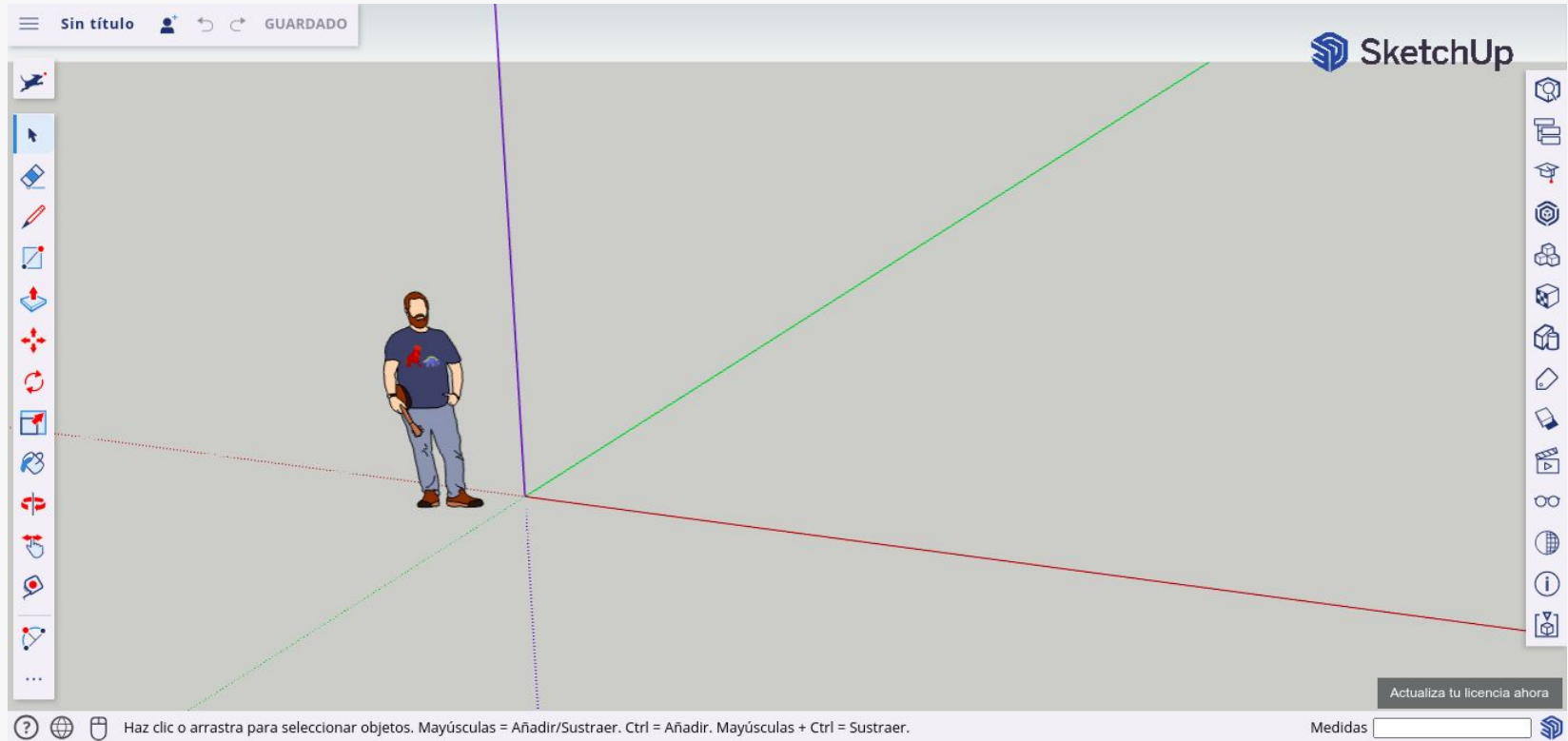
Learn More

Start Modeling

When creating a new project, make sure to choose your preferred units of measurement.
We recommend using millimeters.



You are all set up! 🙌

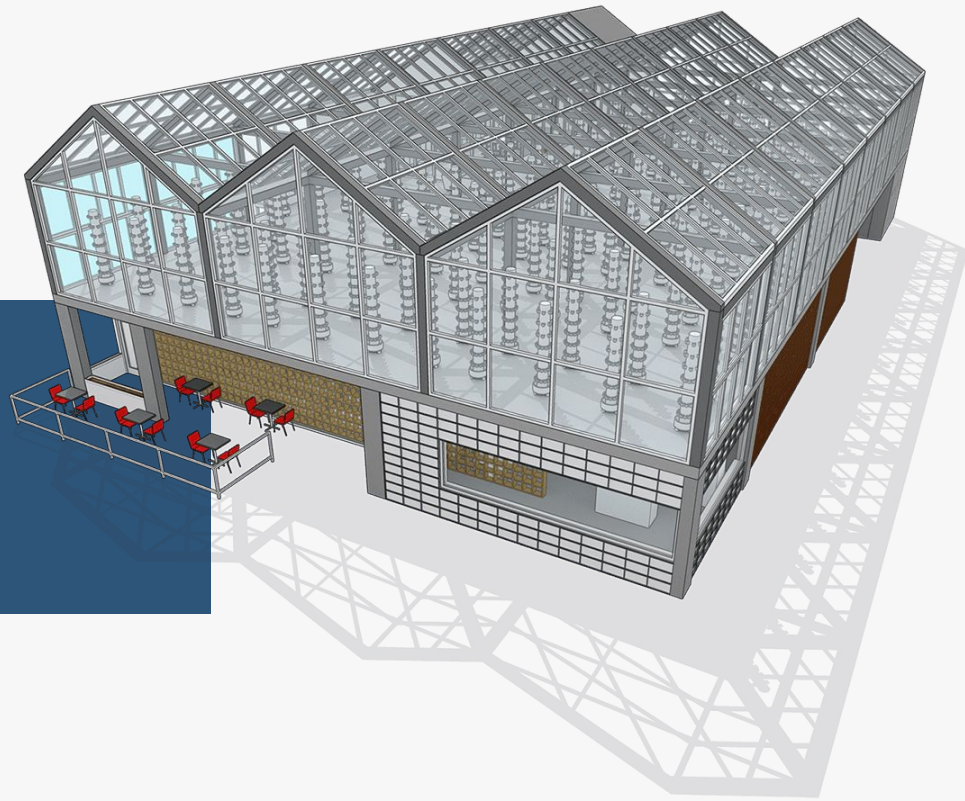


2

BASICS

A lot can be done in SketchUp knowing only the very basics.

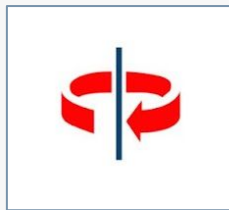
Use your intuition to build complex models with just a few tools.



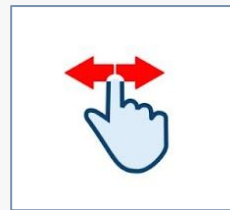
2.1 Navigation



SELECT



ORBIT



DISPLACE



ZOOM

2.2 Basic tools



LINE



ERASER



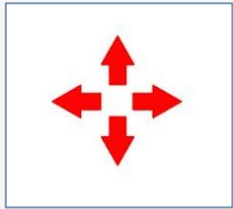
RECTANGLE



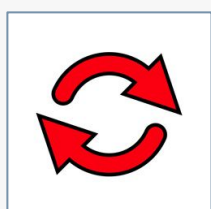
CIRCLE



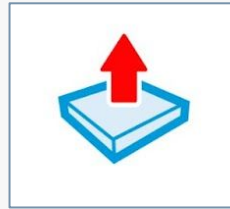
MEASURE



MOVE



ROTATE



PUSH/PULL

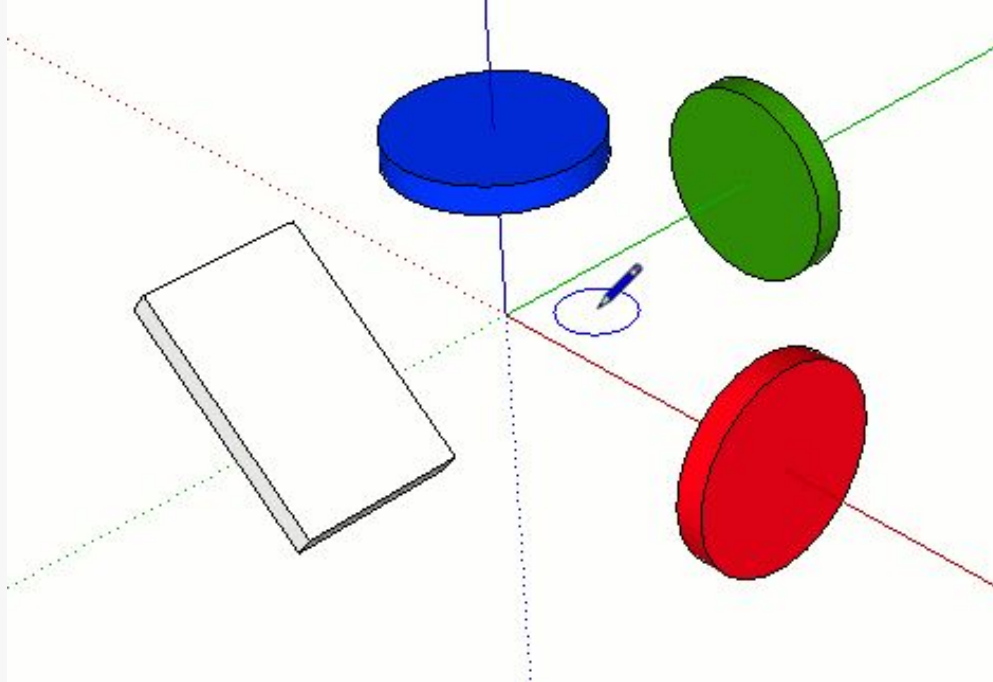


SCALE



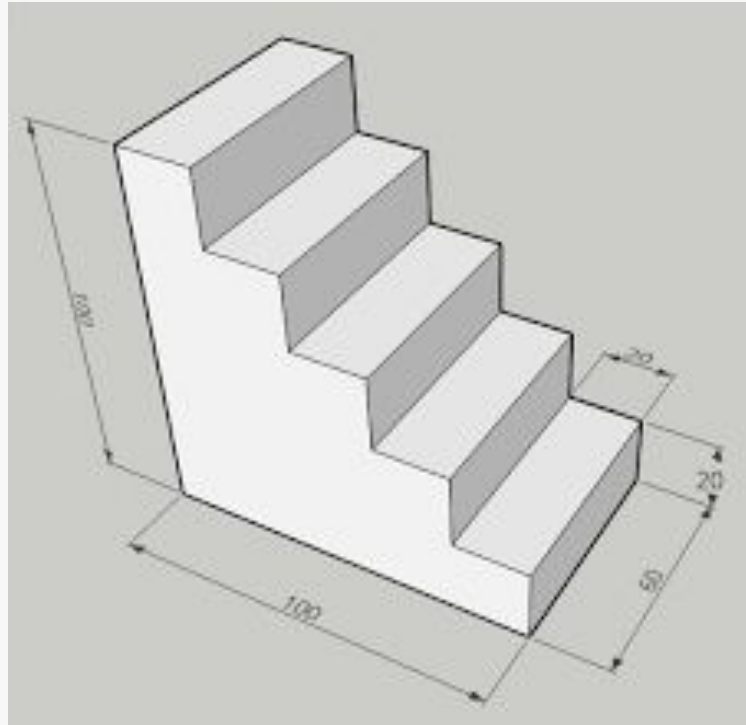
EQUIDISTANCE

2.3 Alignment

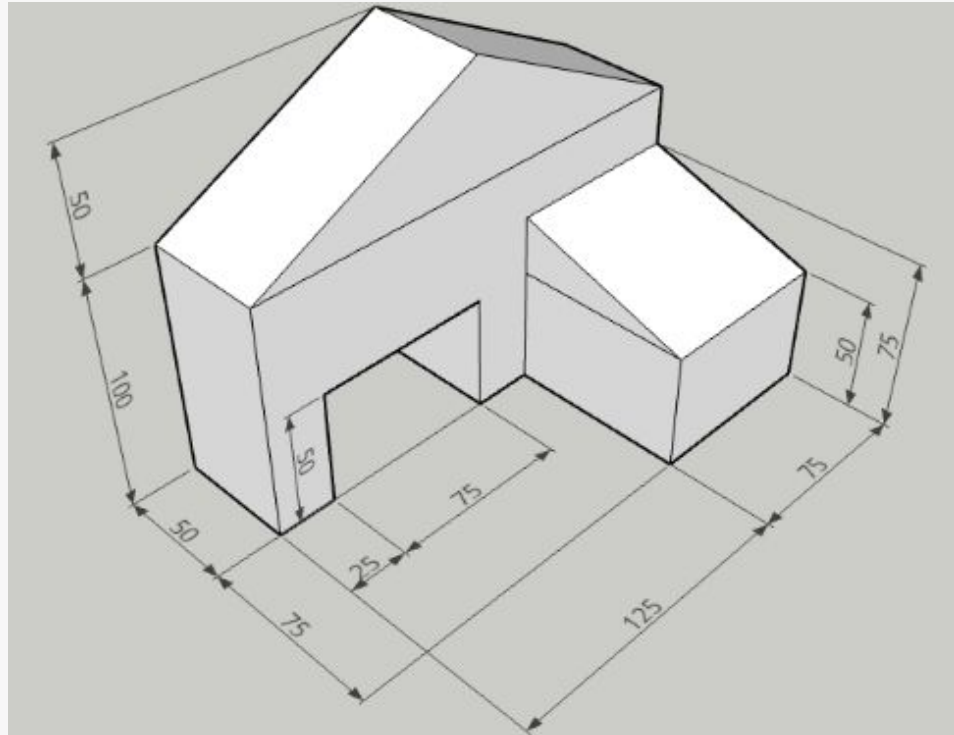


This is an animated image. If you don't see the animation, access it [here](#).

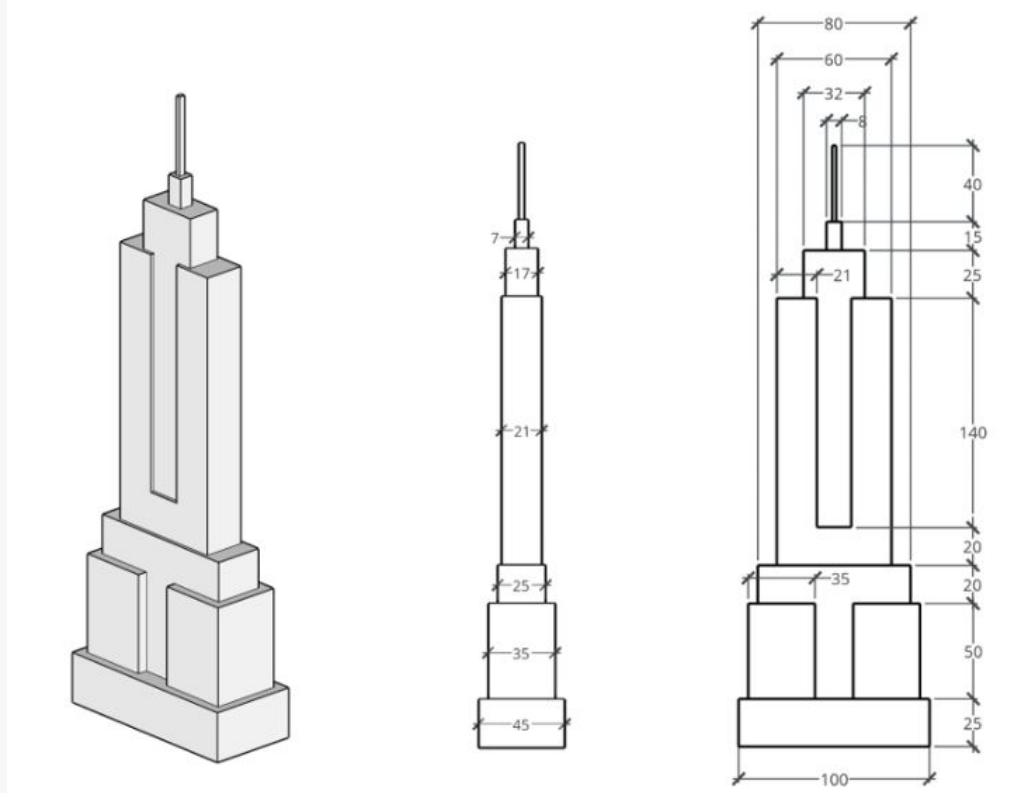
2.4 Exercise 1



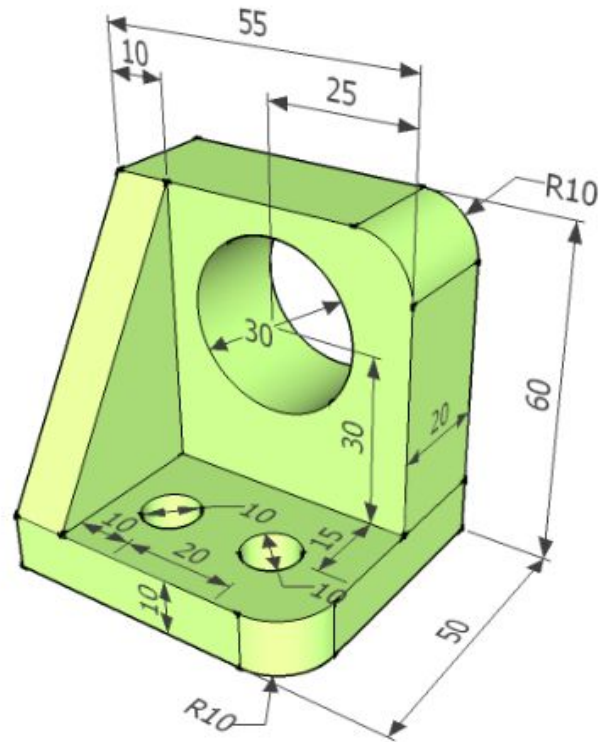
2.4 Exercise 2



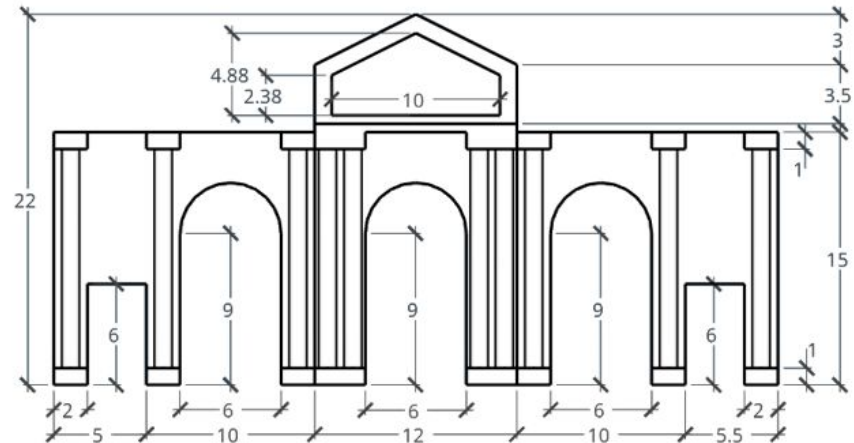
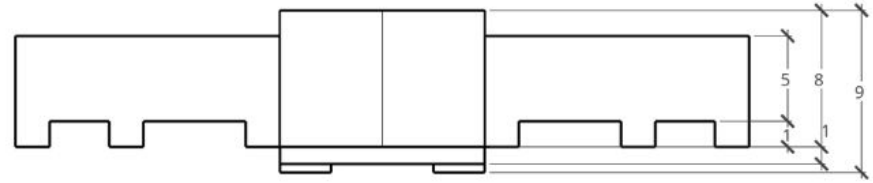
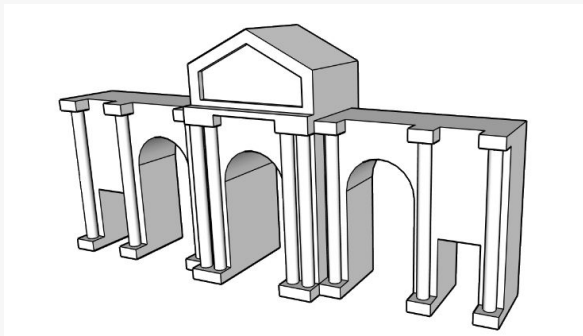
2.4 Exercise 3



2.4 Exercise 4



2.4 Exercise 5



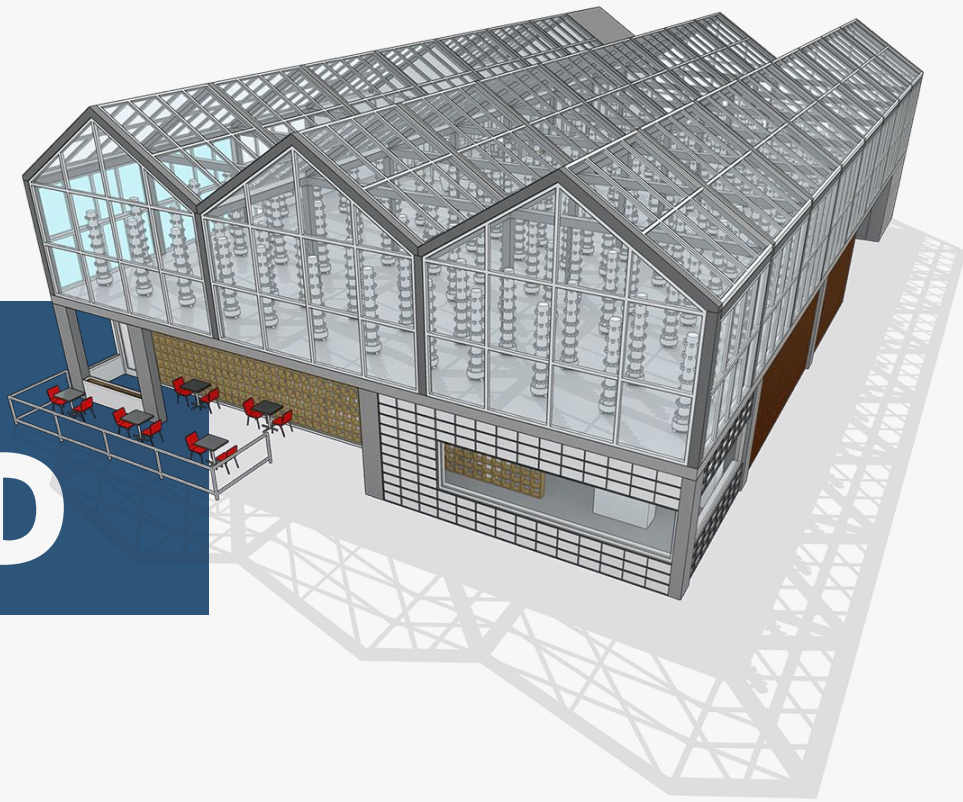
Puerta de Alcalá, Madrid. Visit it on Google Earth by clicking [here](#).

3

ADVANCED

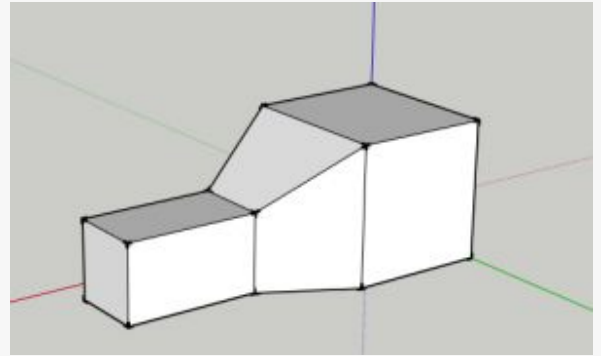
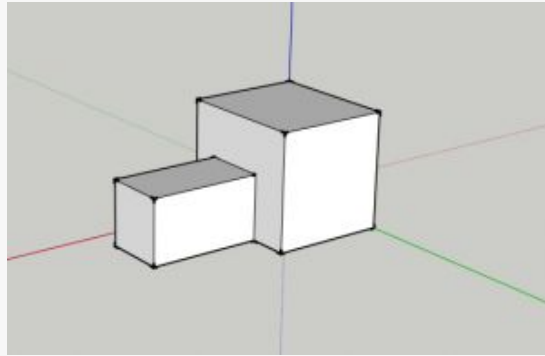
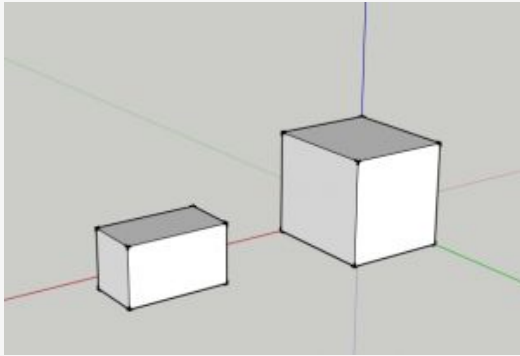
Learn the tools that will allow you to take your models one step further.

Comprehend how these new tools allow you to do complex tasks in an easy way.



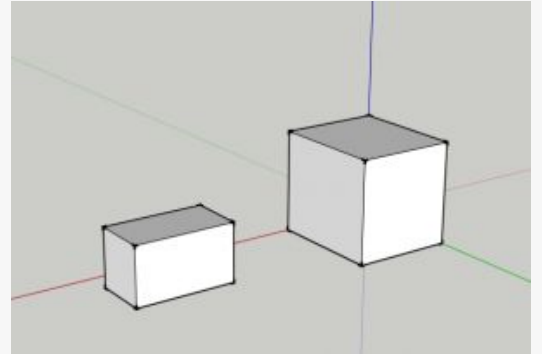
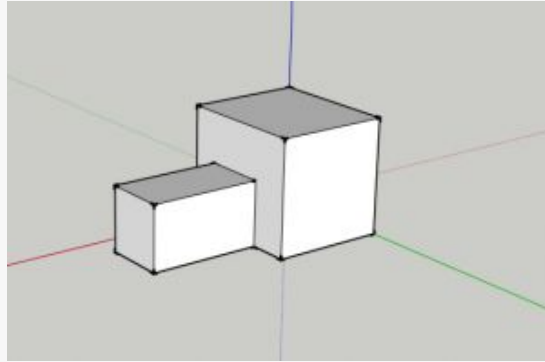
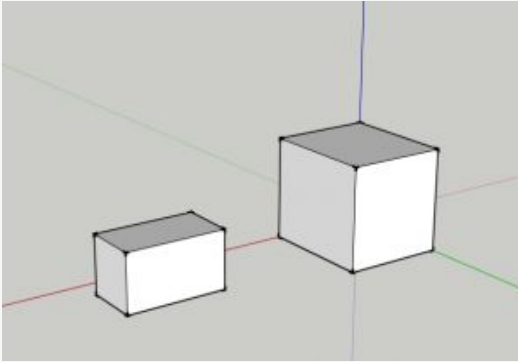
3.1 Groups

Sometimes we do not want independent objects interacting with each other.



3.1 Groups

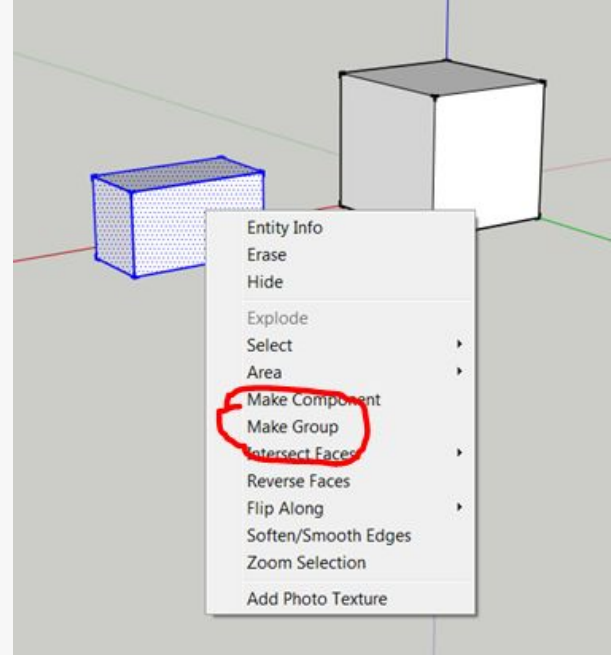
This can be solved by defining a **group** for each of the independent objects.



3.1 Groups

To **make a group**:

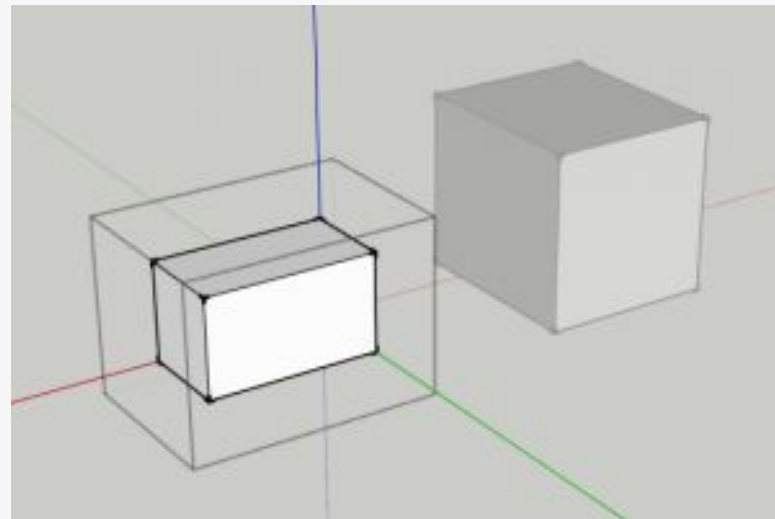
1. Select every element (edges and surfaces) that you want to include in the group
2. Right click + “Make Group”



3.1 Groups

To **edit a group**:

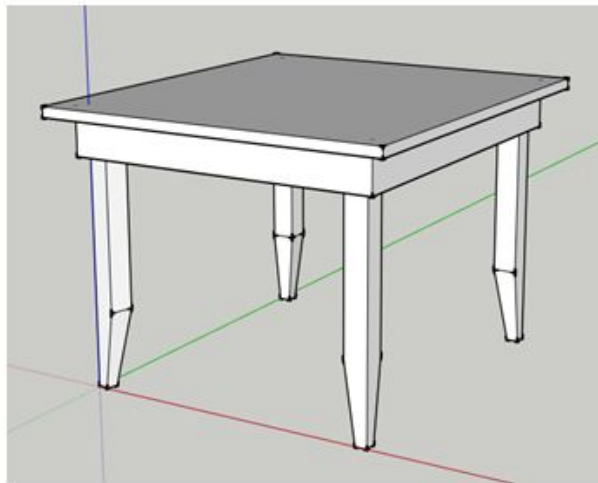
1. Double click the group
2. Every modification you make now will be kept inside the group
3. To stop editing the group, press ESC



3.2 Components

A component is just like a group. However, if you copy it several times, all the copies will be linked. **If you modify one, the changes will also apply to the rest.**

If I model all 4 table legs as copies of a single component, then all I have to do is change 1 leg and the other 4 will change as well



3.2 Components

To **make a component**:

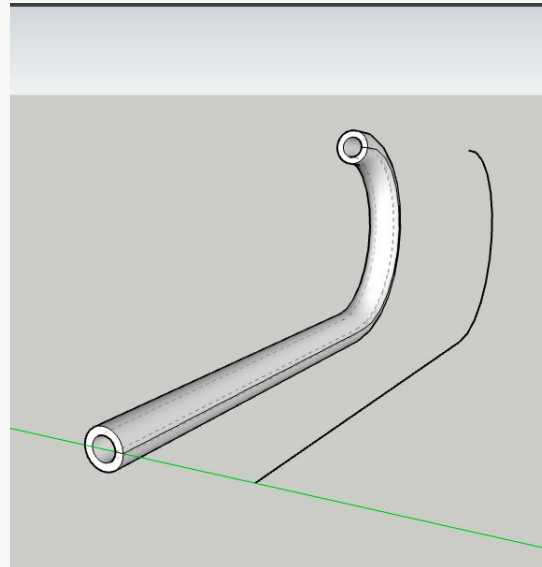
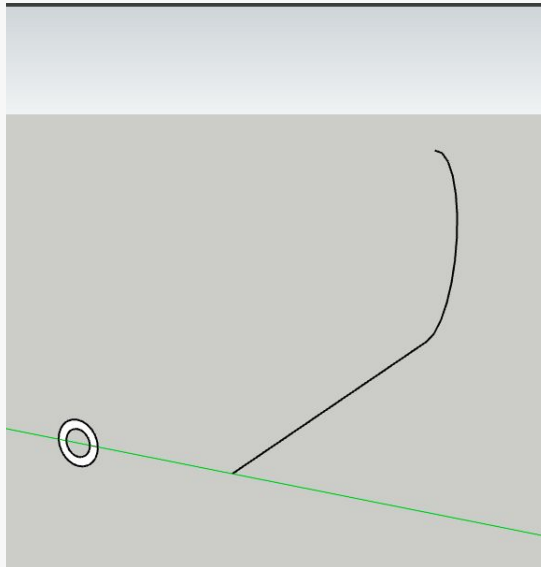
1. Select every element (edges and surfaces) that you want to include in the group
2. Right click + “Make Component”

To **copy a component**:

1. Ctrl+C -> Ctrl+V

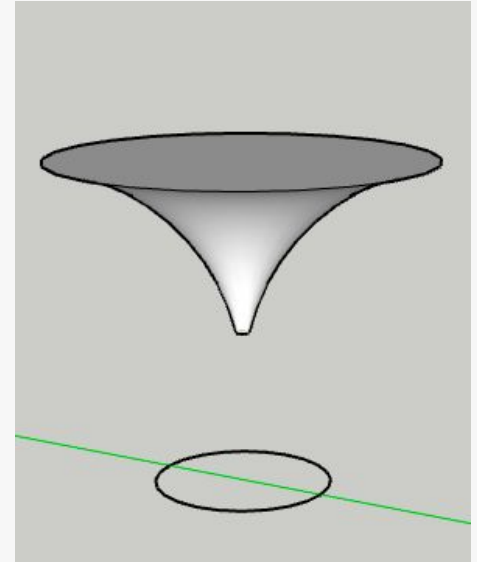
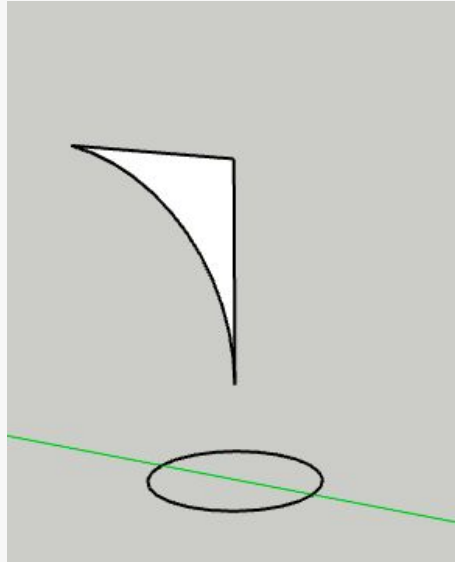
3.3 “Follow Me” tool

Given **a surface** and **a path** (several edges connected together), the “Follow Me” tool will extrude the surface along the path.



3.3 “Follow Me” tool

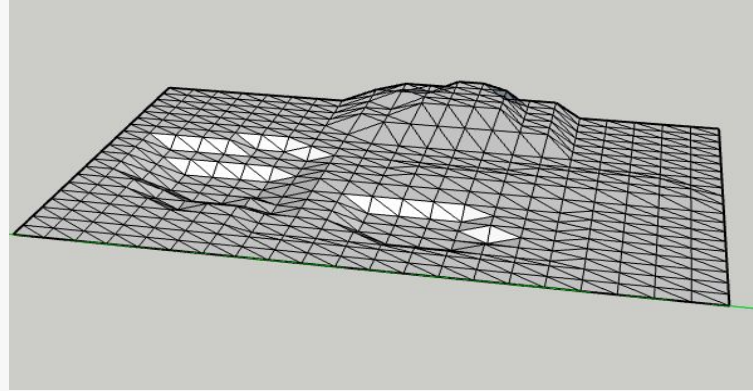
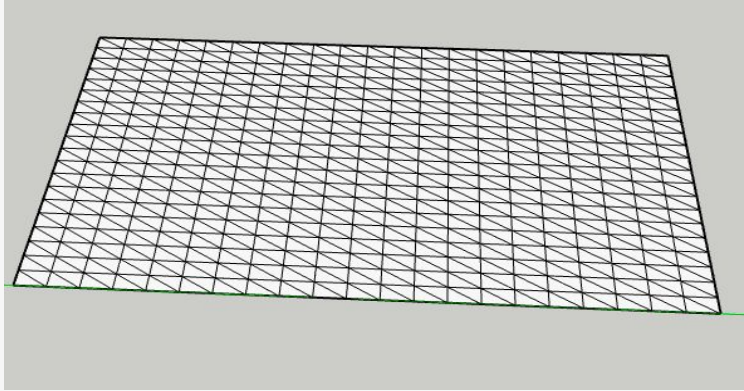
Possibilities are endless. Think about revolution bodies, it is just like pottery.



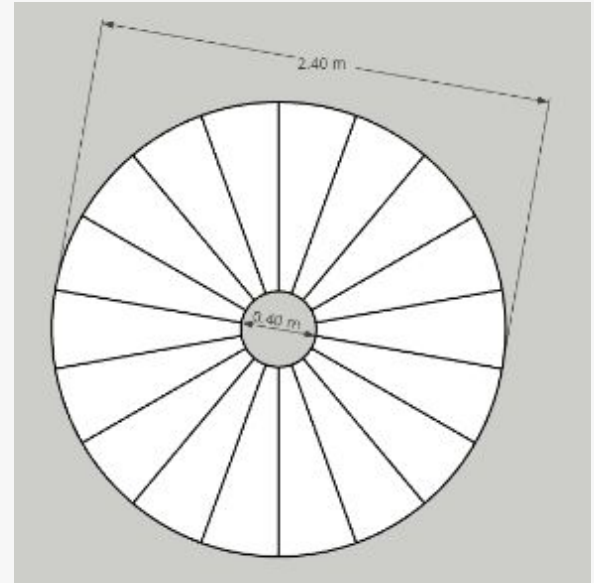
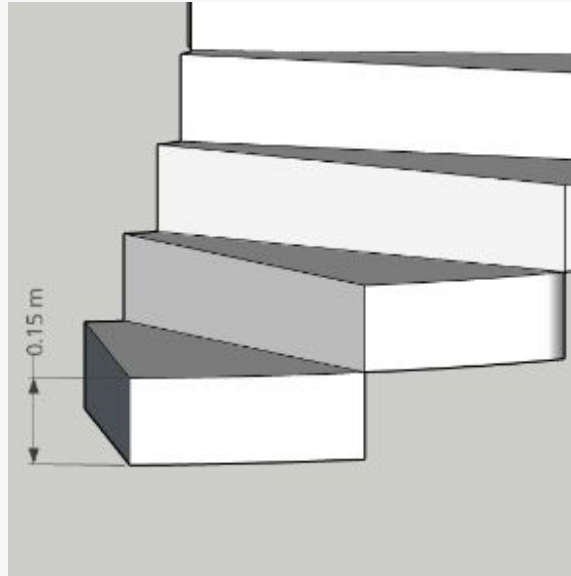
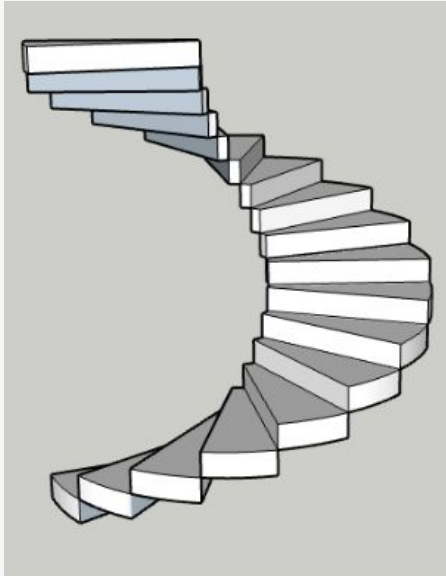
3.4 Meshes/Terrains

With what you know, you can build a mesh pretty easily.
You can see it as an adaptable surface, just like a terrain.

Move each intersection on the up/down axis.
You can select multiple intersections at a time



3.5 Exercise 1



3.5 Exercise 1

Staircase Tip: Make it so that all the steps are components linked together, meaning that if you change one, the others will change as well.

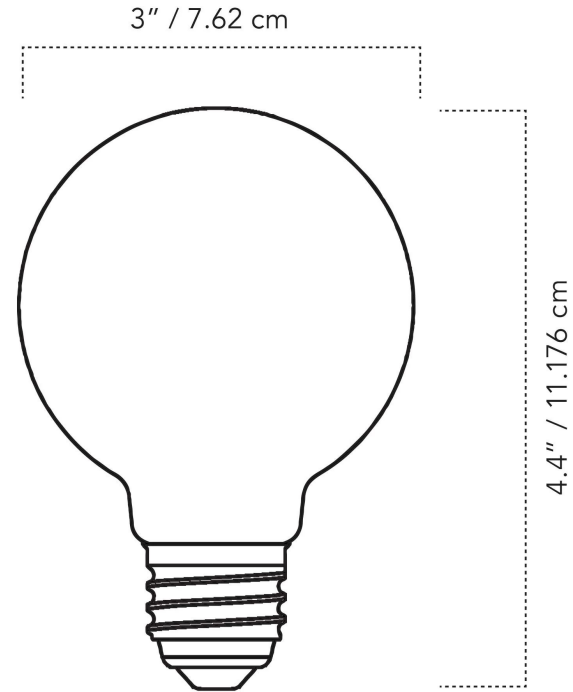
Once you have it, add a pillar at the center of the staircase.

Adding a handle to the staircase using the Follow Me tool is also a very good idea.

3.5 Exercise 2

Ask us for some tips on how to make the bulb's screw.

For the glass part of the bulb, think about it being a revolution body (use Follow Me to follow a circle).

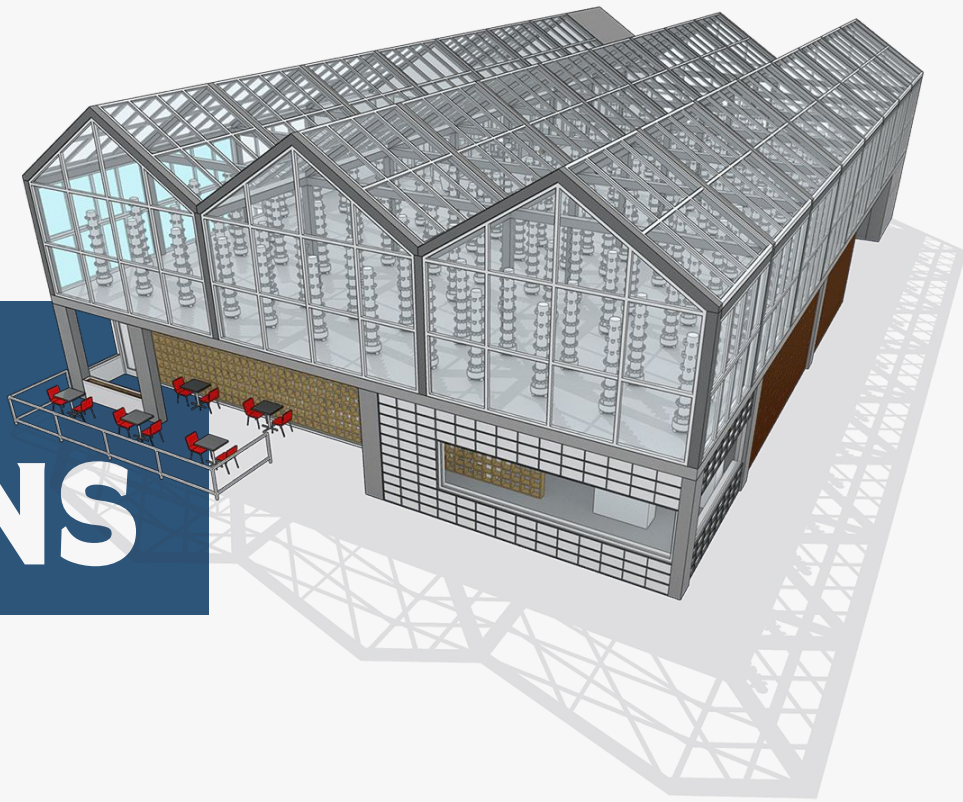


4

EXTENSIONS

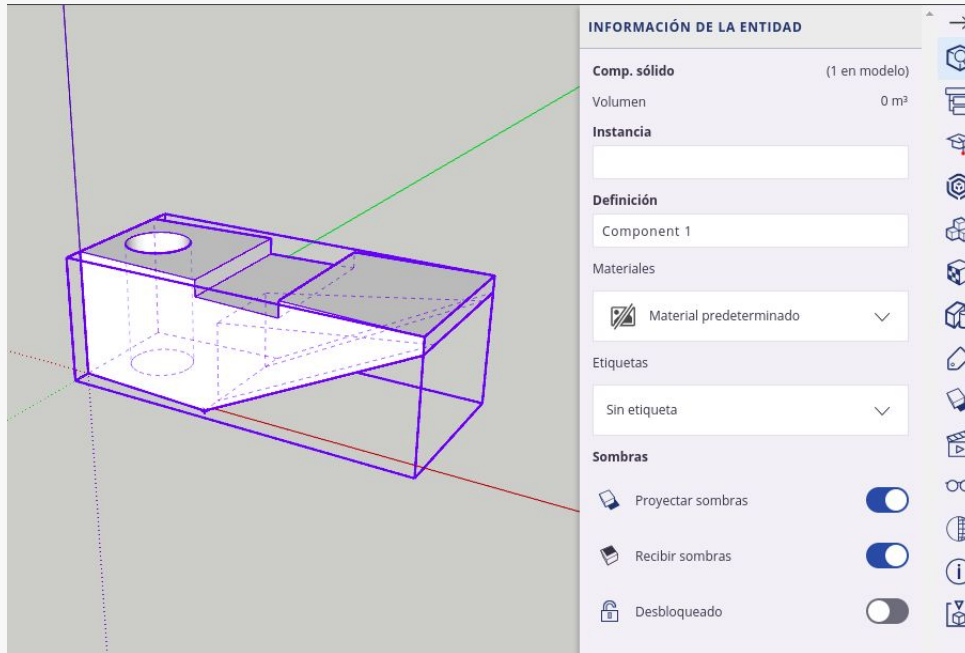
SketchUp comes with a variety of extensions that will make your life easier.

We'll take a look at a couple of them.



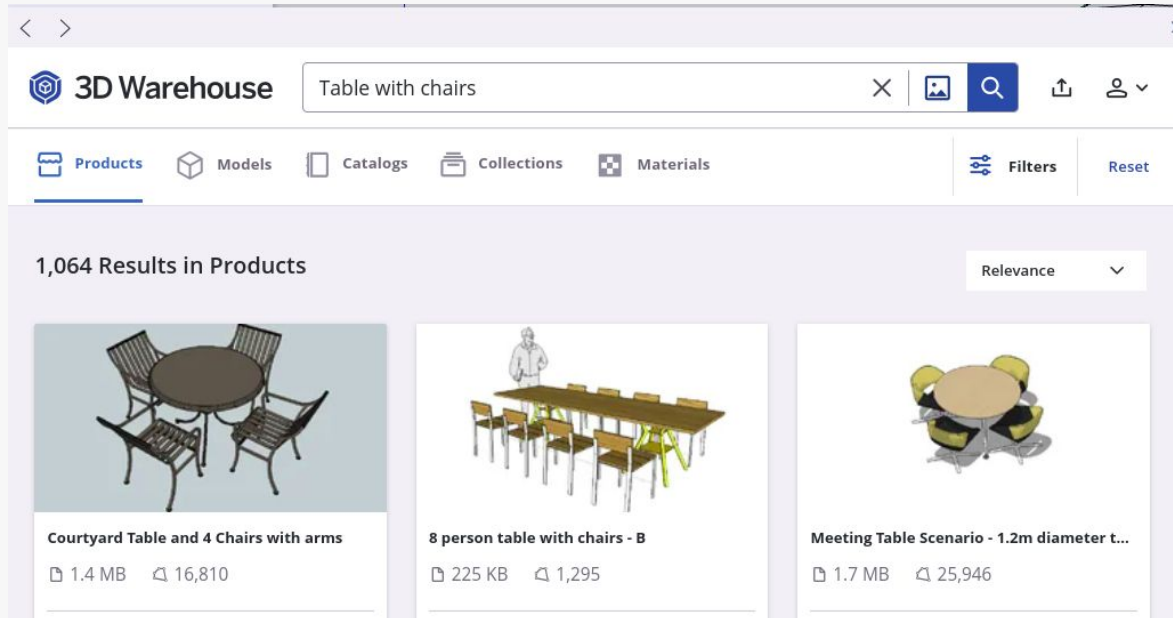
4.1 Entity Information

It is the first icon on the right-hand side of the screen. It displays information about whatever entity we have selected.



4.2 The 3D Warehouse

Use any model built by the community.
For example, you can search for a “Table with chairs” model and import it into your project.



4.3 And many more...

Explore the rest of the extensions on your own.

SketchUp is easy to grasp as long as you are driven by curiosity.

Do you want to 3D-print your model? Check out the Solid Inspector extension.

Do you want to make a small video showcasing your model?
Check out the Scenes extension.

...



**THAT'S ALL
FOLKS**

Thank you for your interest.