

## Learning Guide

# Create 3D Models with Tinkercad

## Introduction

Tinkercad is a freely-available, easy-to-use 3D design tool that runs in a web browser. It is a versatile program that can also be used in electronics and coding. The skills you will learn using Tinkercad provide the foundations for using other 3D modeling tools and can be applied in many disciplines, including engineering, industrial design, architecture, and more. By the end of this lesson, you will be able to create a 3D model using Tinkercad, and export your model for use in other applications.

**Video Learning Guide for this Lesson:**

<https://www.youtube.com/watch?v=GLwh9FoWJAQ>

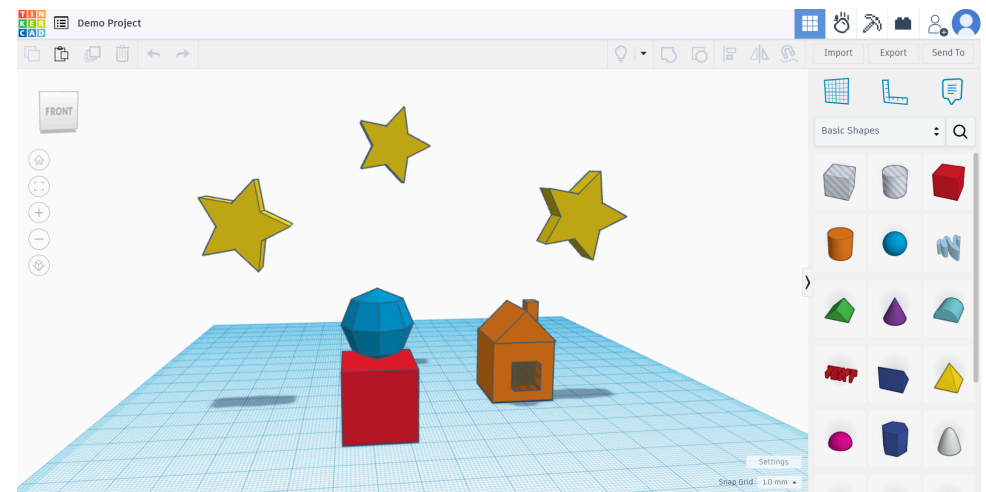
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## Step 1: Get started with Tinkercad

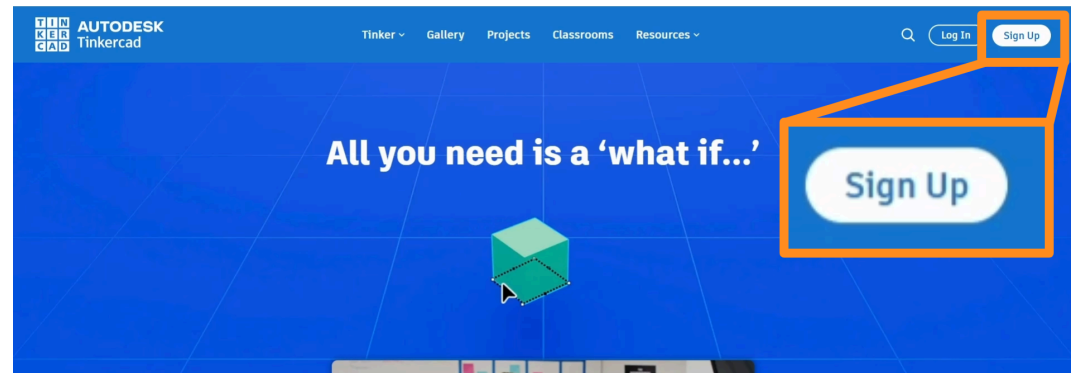
### Preview

It is quick and easy to get started with Tinkercad, so you can jump right in to creating your own 3D models. In this section, you will learn how to set up your free account and create a new project.

### Experiment

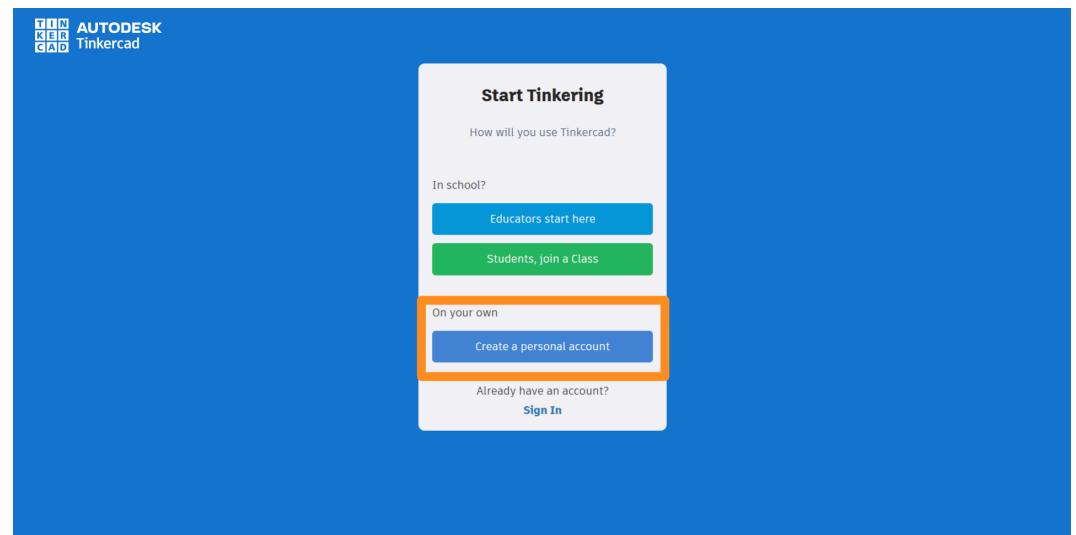
#### LOG INTO TINKERCAD

Open Tinkercad (<https://www.tinkercad.com>) on your web browser and click **Sign Up** in the upper-right corner to create a free account.



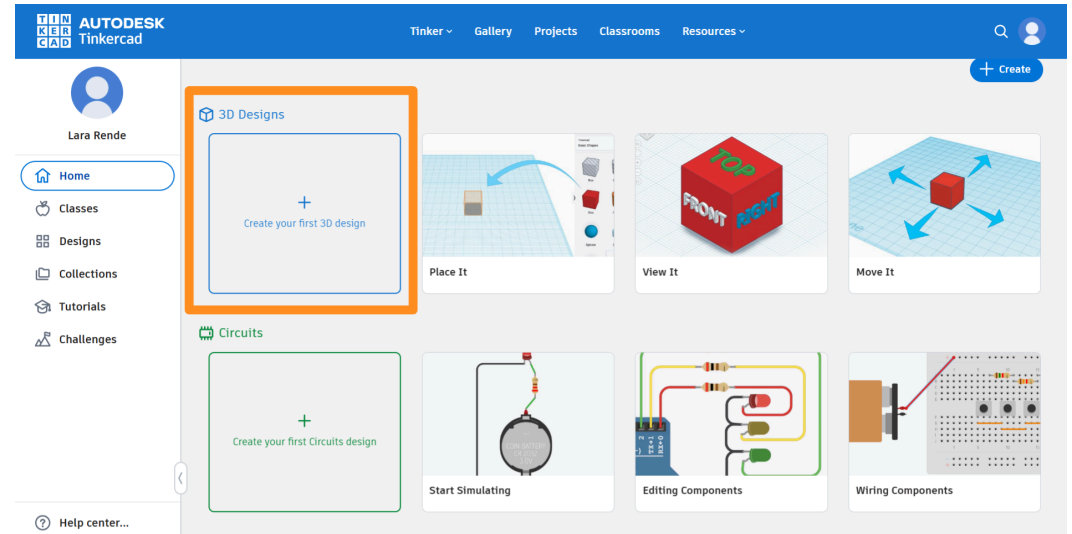
Pick the **Create a personal account** option and sign up with your email address.

After your account is created, you can keep all of your Tinkercad projects under the same account.

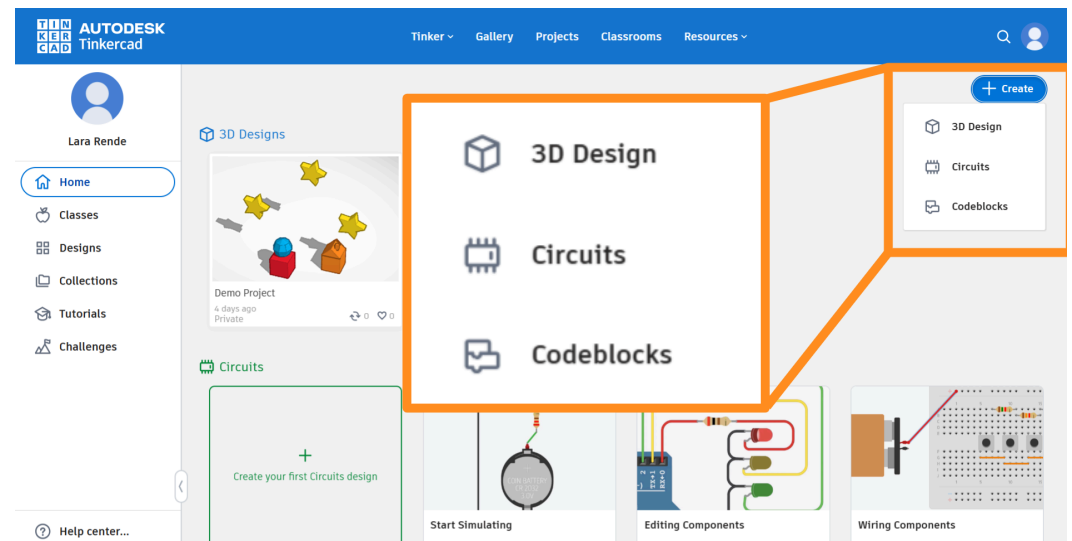


## CREATE A NEW PROJECT

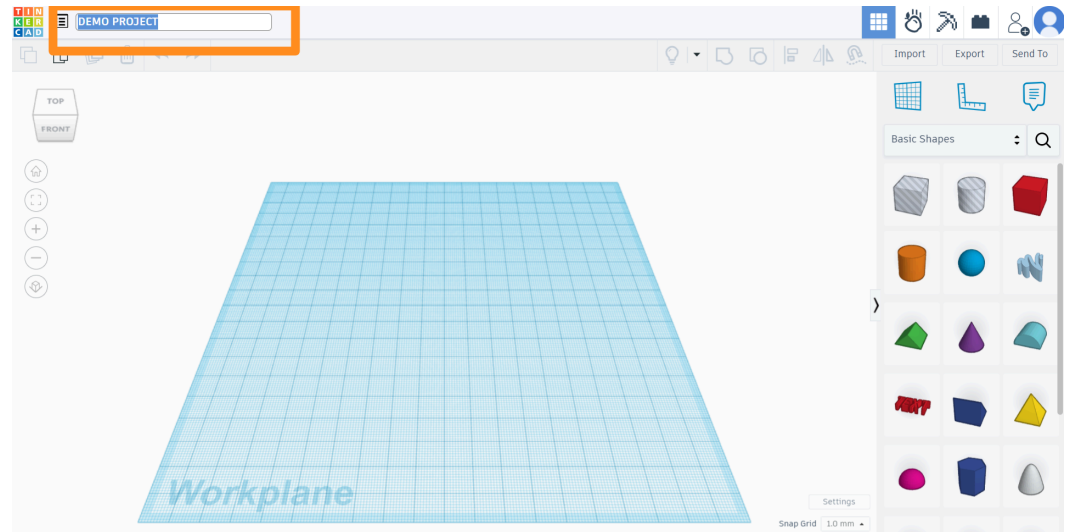
Click on **Create New Design** on your dashboard.



You can also click the **+Create** button on the right side of the screen, and select the **3D Design** option.



You can rename your project any time by clicking on the title in the upper left corner.



## Self Check

Were you able to create a Tinkercad account and set up a new 3D project? Do you have an idea of what kind of 3D model you are planning to create?

## Step 2: Create a 3D model

### Preview

This section will show you how to navigate in the viewport and begin creating 3D models in Tinkercad by adding, editing, and grouping shapes.

### Experiment

#### VIEWPORT AND CONTROLS

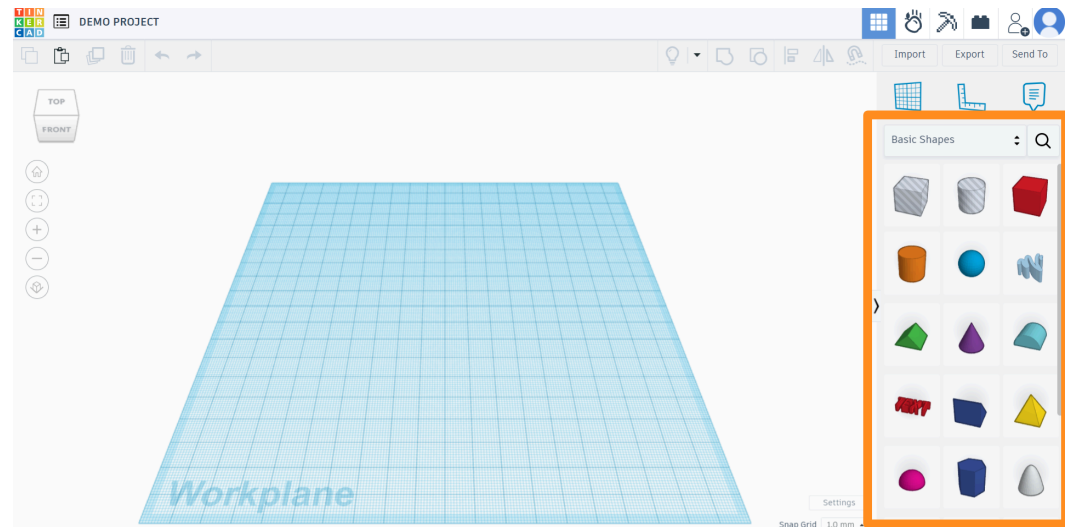
**Zoom:** Use the scroll wheel on your mouse.

**Pan:** Hold down the scroll wheel and move the mouse.

**Rotate:** Hold the right mouse button and move the mouse.

#### ADD SHAPES

From the **Basic Shapes** library on the right, click on the shape you want to use to start making your 3D model and drag it onto the workplane.

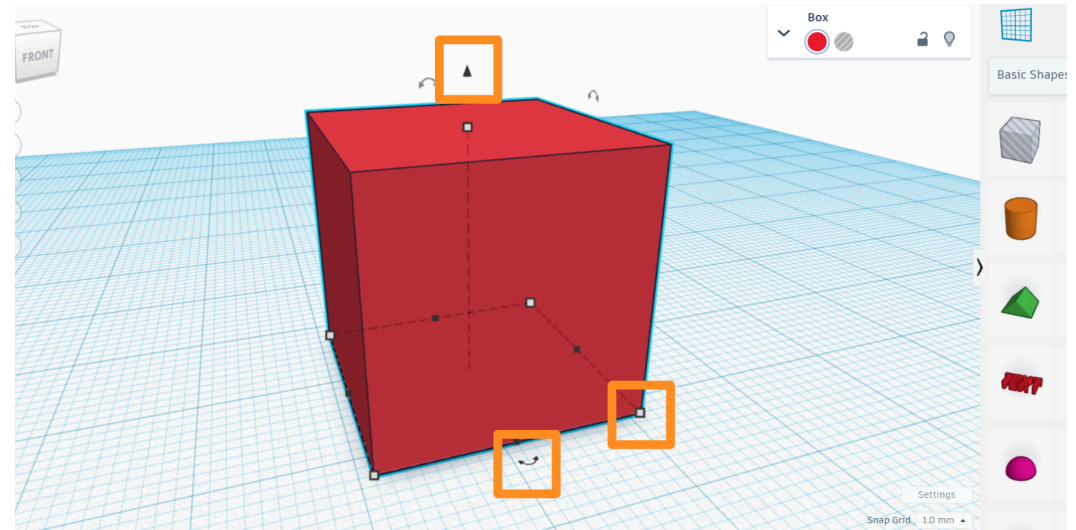


## MOVE SHAPES

To move your shape on the workplane, click on the shape and drag it to the position you want. To move your shape vertically, click and drag the **cone icon** on top of your shape.

To rotate your shape, click on the **half-circle arrow** icons on different sides of your shape and drag.

You can scale your shape on different axes by click-dragging on the white square icons around your shape.

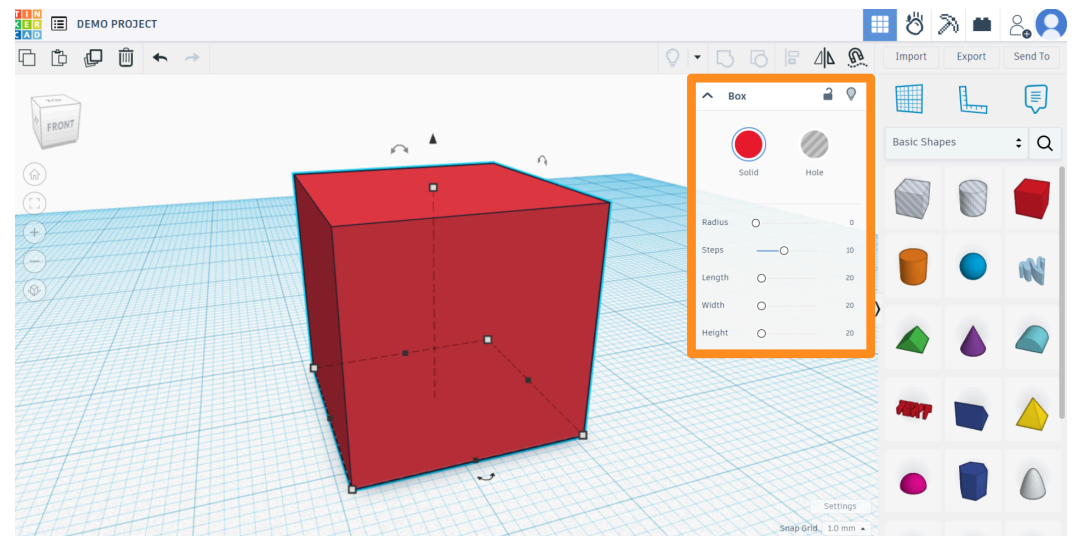


## EDIT SHAPES

Click on a shape to select it. It will be highlighted in blue.

Use the dropdown menu on the right side to change the object's shape, dimensions, color, and more.

Keep in mind that the dropdown menu will be customized based on the shape selected, and not all shapes will have the same settings.

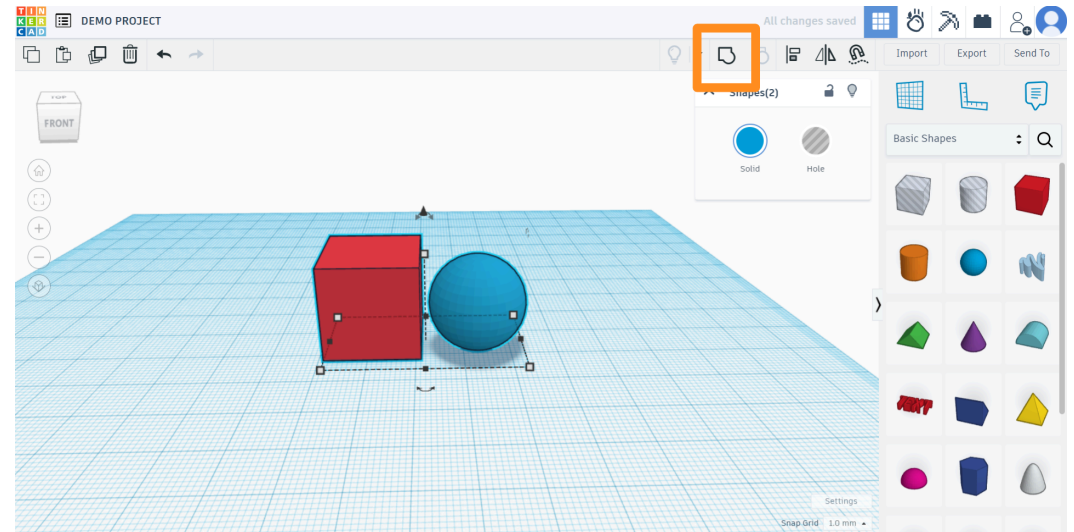


## GROUP SHAPES

Select multiple shapes by holding the **Shift** key and clicking on each shape, then click the "**Group**" icon on the top menu bar or press **CTRL+G**

Grouping shapes will combine them into a *single shape* with the *same* material. If individual material/color/texture is important for each individual shape, leave them separated.

You can ungroup shapes with the "**Ungroup**" icon on the top bar or by pressing **CTRL+SHIFT+G**.

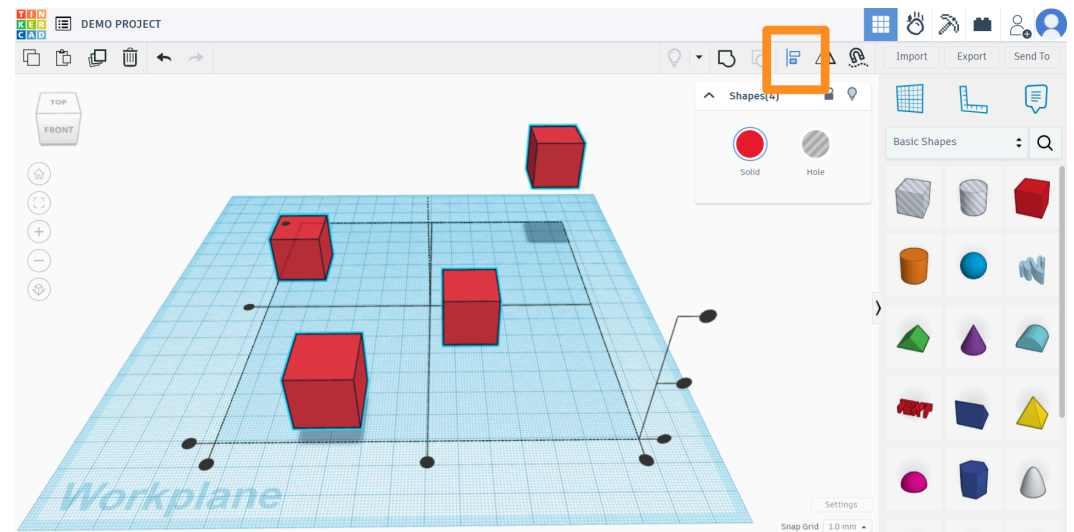


## ALIGN SHAPES

Depending on the 3D model you're creating, you might find it useful to position your shapes on the same axis; for example, if you have multiple little houses that need to be positioned by the side of a road.

In this case, you can use the **Align** tool to align multiple shapes on the same grid plane or axis.

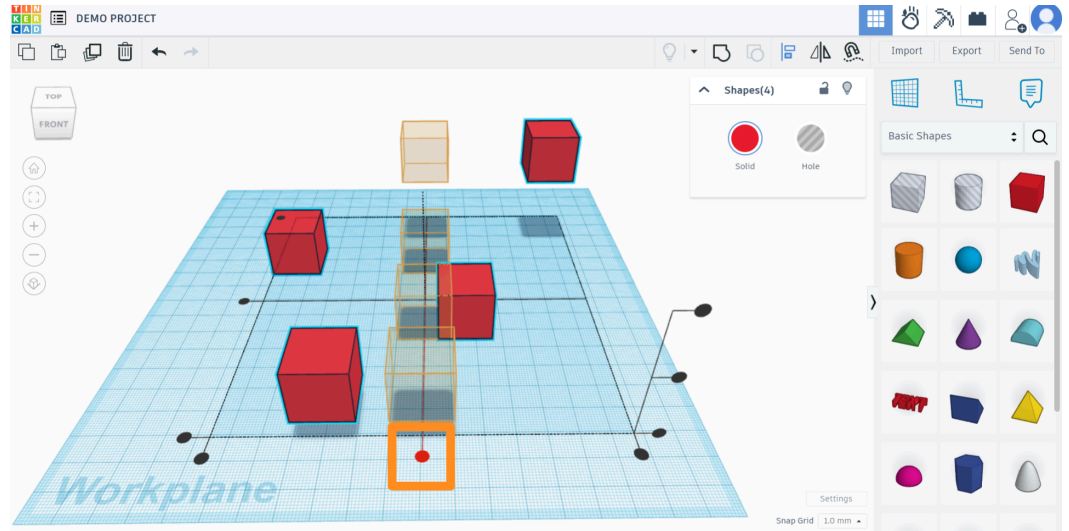
Select the desired shapes by holding down the **SHIFT Key** and clicking on each one, then click on the "**Align**" tool on the top menu bar or press the **L Key**.



Use the circular alignment handles to select in which direction you want to align your shape. If you hover over one of the handles, you will see a preview of what the aligned shapes will look like.

Click on the desired circular handle to align your shapes as you wish.

You can always undo (CTRL+Z) if you make a mistake during alignment.



## Self Check

Were you able to group some shapes and then align them on the axis you wanted? There are many shapes and tools in Tinkercad that will help you build the 3D model you want. Take your time exploring what each option offers in Tinkercad.



## Step 3: Export your model

### Preview

When you're done with your Tinkercad project, you can export the 3D model you've created to use it in different softwares or tools. Follow this step to learn different export options in Tinkercad.

### Experiment

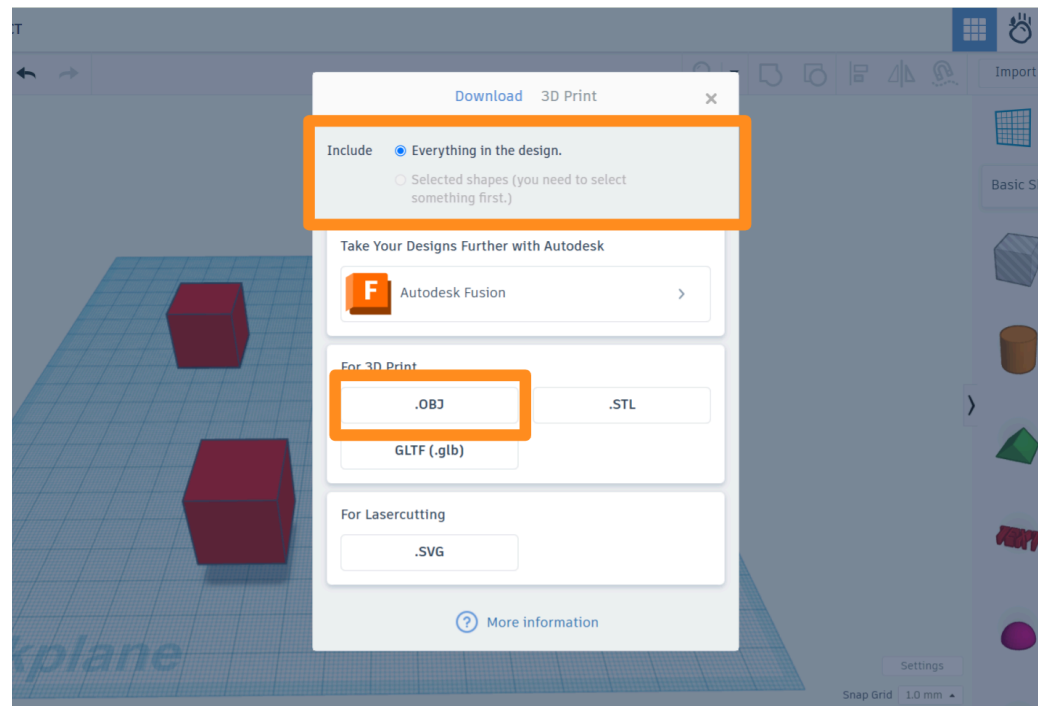
#### EXPORT

Click on the **Export** button on the top right.

In the "Include" options, you can download everything in your design or just the selected shapes.

There are multiple file format options to download your model. You can try the different options depending on your needs. For the purposes of this lesson, we will be using the **.OBJ** option.

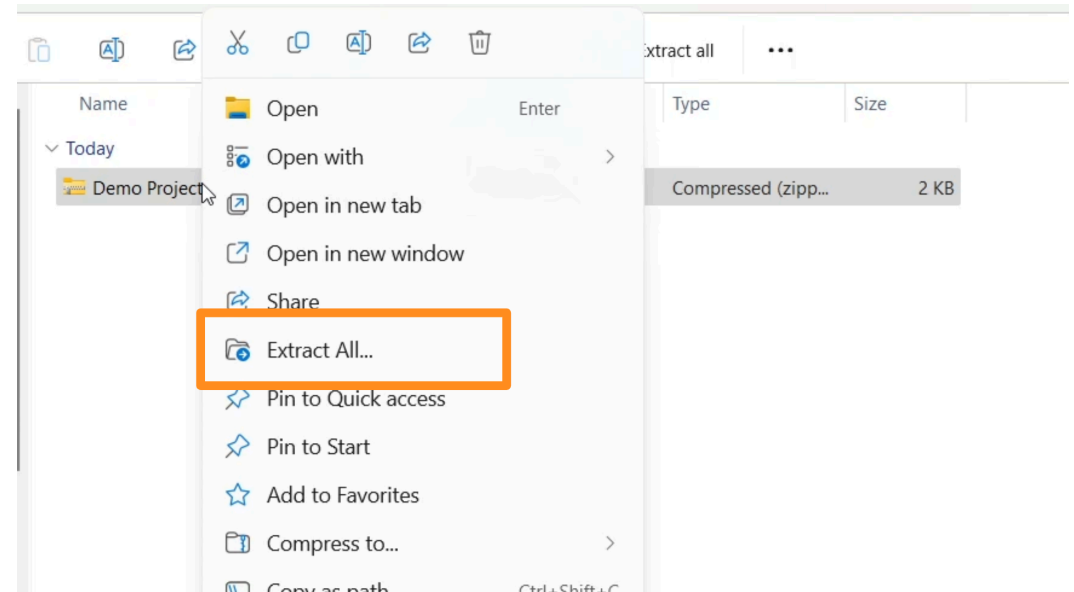
Tinkercad will automatically download your model to the "Downloads" folder in a compressed zip folder format.



To be able to access your model from another software or tool in the future, you need to extract your file from the zip folder.

To do this, open your “Downloads” folder and find the zip folder you downloaded from Tinkercad. Right click on the folder, and select **Extract All...**

You can now access your 3D model from the new (unzipped) folder. Generally, the 3D model will be named automatically as “**tinker.**”



## Self Check

Are you able to access your model on your computer after exporting?

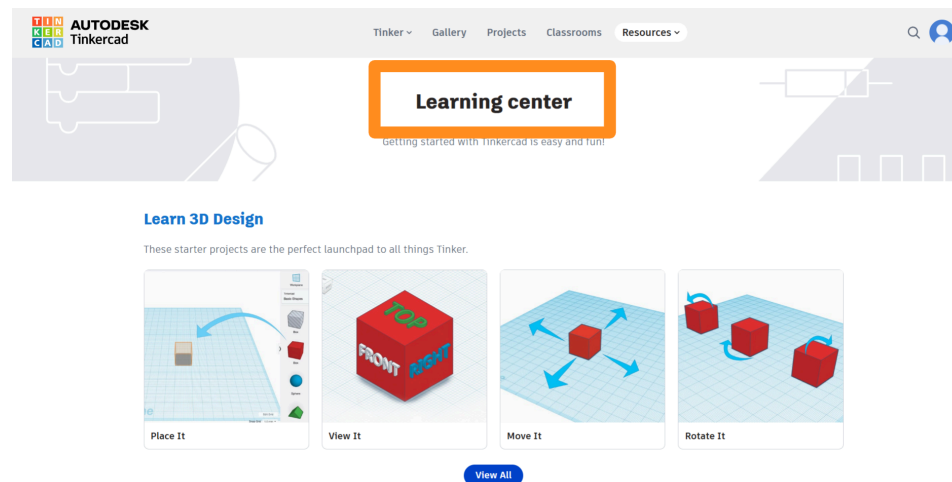
## Lesson Closure

## Demonstration of Learning

In this Guide, you've learned how to start a project, navigate in the viewport, and create a 3D model in Tinkercad. As a final step, you've exported your 3D model to your computer to be used with other tools.

## Exploration Opportunities

Getting used to modeling and creating in Tinkercad might take some time and practice. There are many helpful tutorials on [Tinkercad's Learning Center](#) under the "Resources" tab that can help you get familiar with Tinkercad's functions and potential.



You can now use the 3D model you've created and exported from Tinkercad in many different types of 3D projects. If you're interested in learning how to create your own webpage with animated 3D features, check out the following lessons:

[Edit and Animate 3D Models with Spline](#)

[Create a Personal Website with 3D Animations Using Weebly](#)