

Part 1 - 3D Modelling

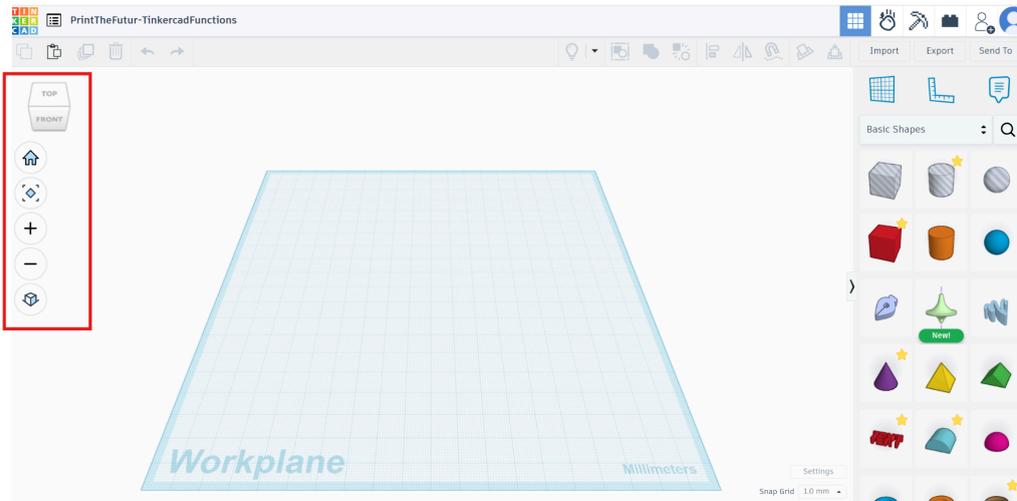
For beginners in 3D modelling and 3D printing we recommend to start learning Tinkercad.

Once the participants are familiar with Tinkercad and basic modelling skills, tinkercad should be combined with other software to speed up the modelling process and circumvent some limitations of Tinkercad

Most important function

Change the point of view

Change perspective (cube), return to home view (house-icon), zoom to object (route with border), Zoom in (+), zoom out (-), flat view (small cube)



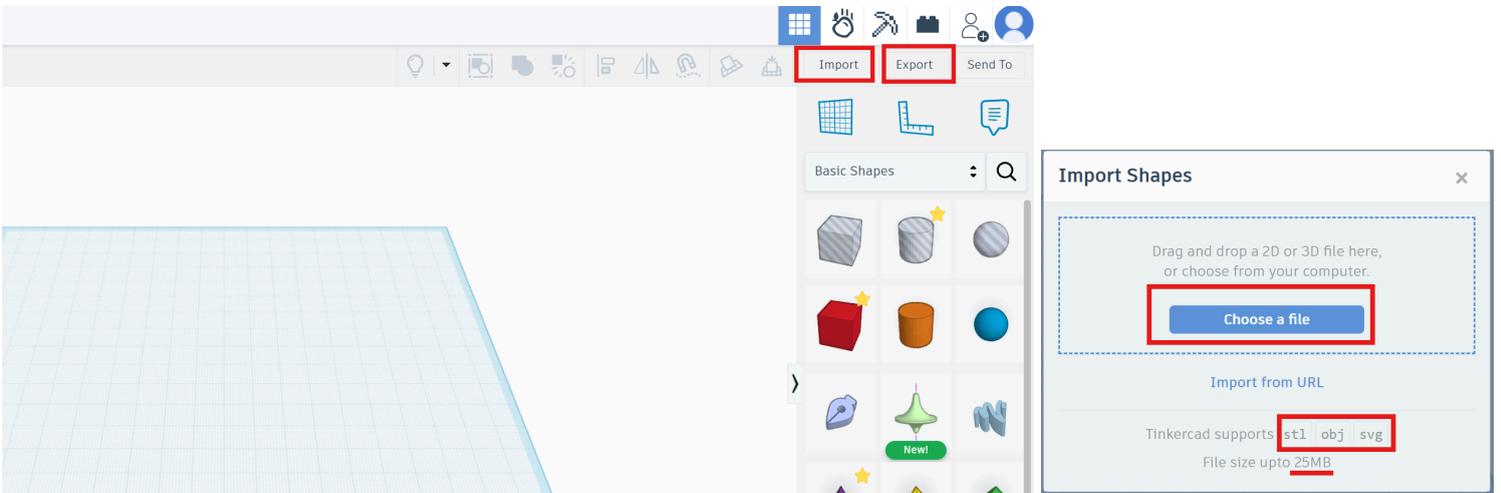
Import objects

Click on "import" opens this window. You can import .stl or .obj files or .svg files.

In 3D printing .stl is mostly used.

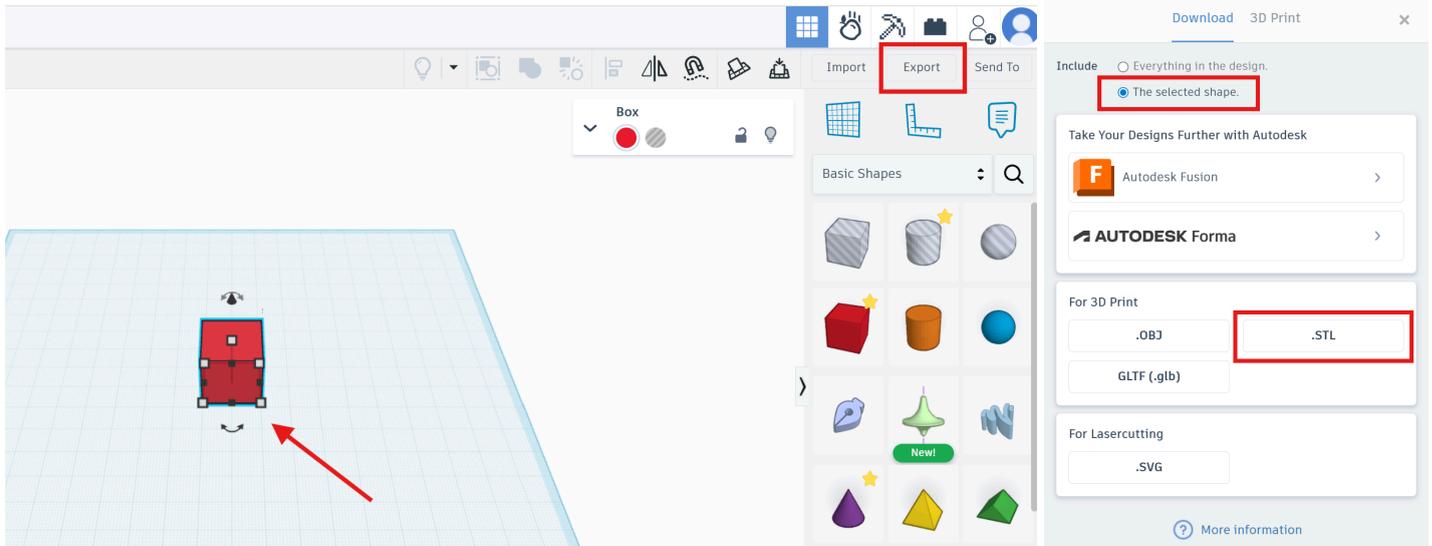
The object size limitation is 25 MB. Many 3D files a bigger than 25 MB.

With the help of a slicer software, it is possible to reduce an object storage size and import the object in Tinkercad without significant quality los.



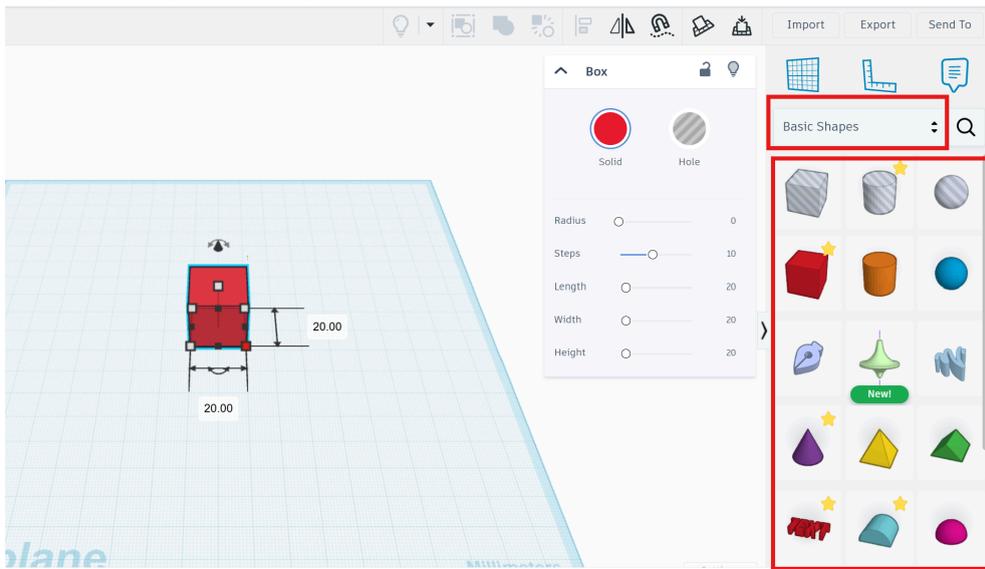
Export objects

First you have to select the object, which you wish to export. Then click on “export” and it opens the export window. We recommend to export as .stl file, as it is the most used format.

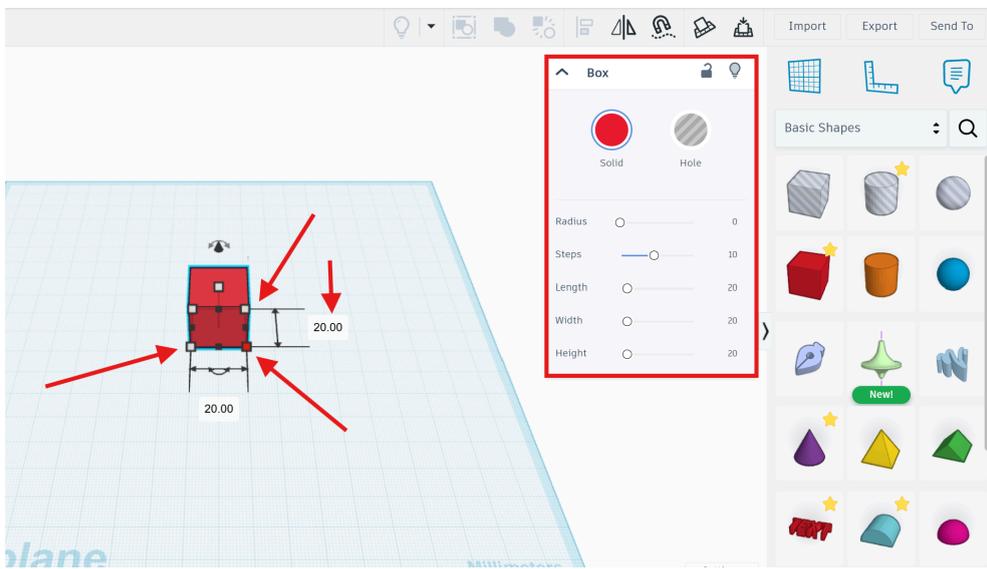


Work with objects

drag and drop from left panel

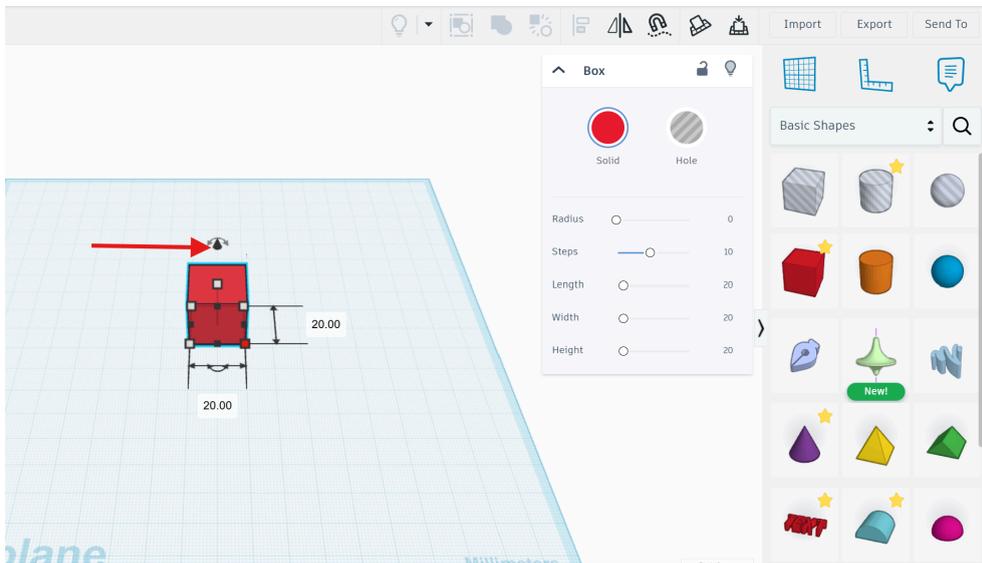


Manipulate object size
using the sca

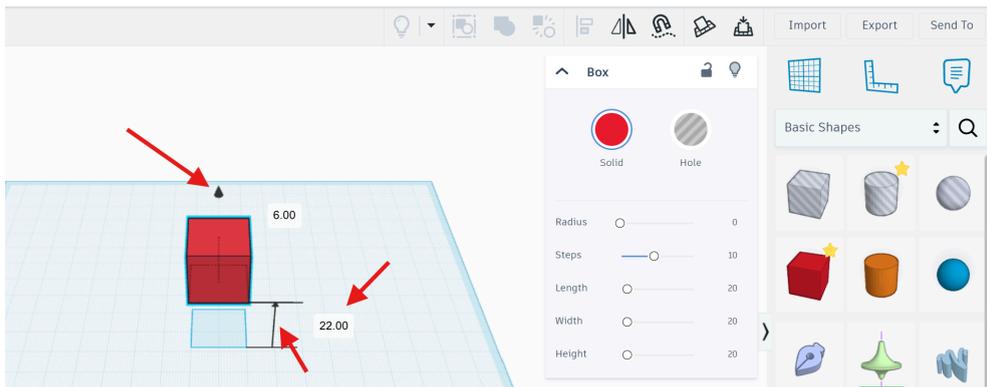


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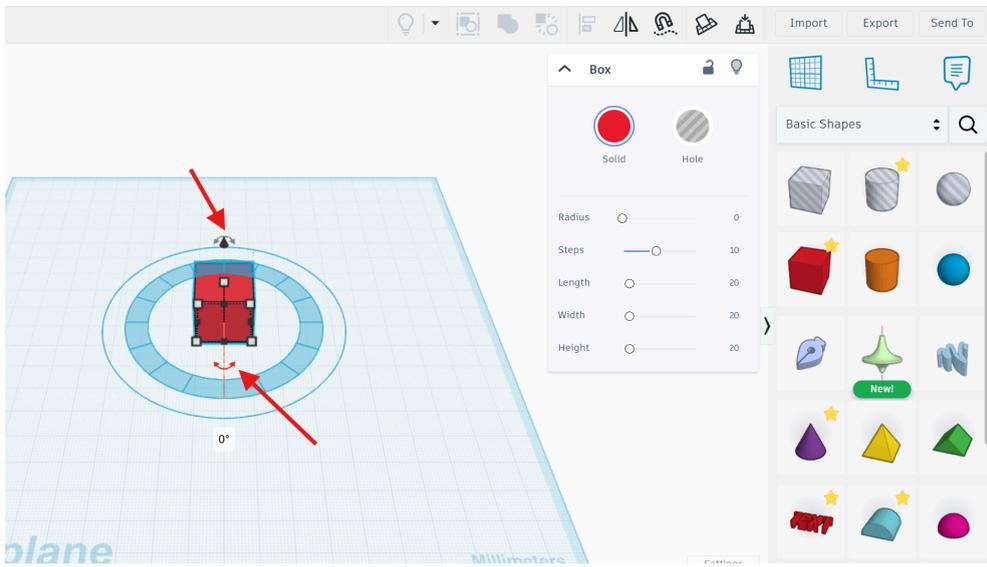
Move an object up or down, you can click on the cone icon above the object and then move it up or down with the left mouse pressed or ctrl+ arrow up (or ctrl + arrow down)



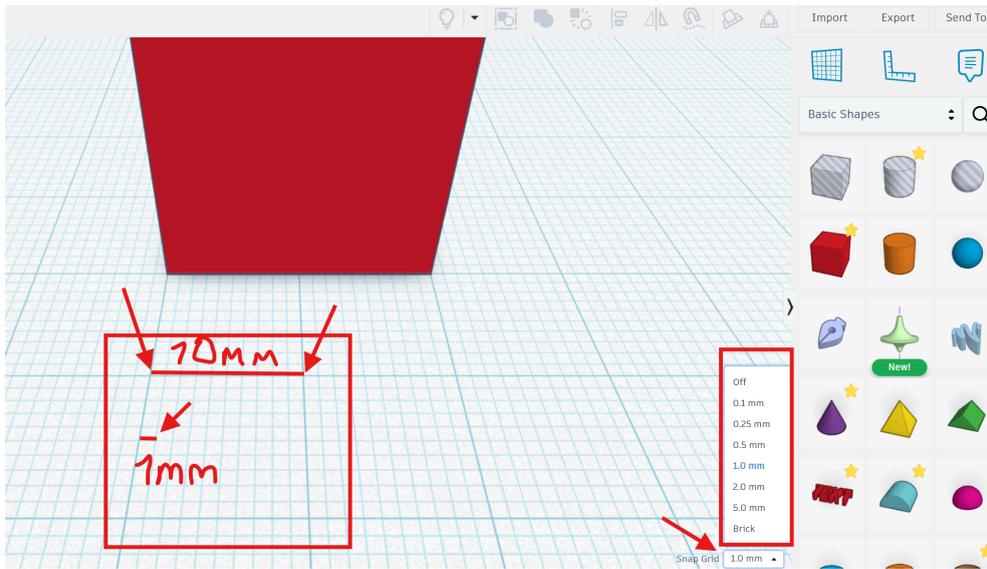
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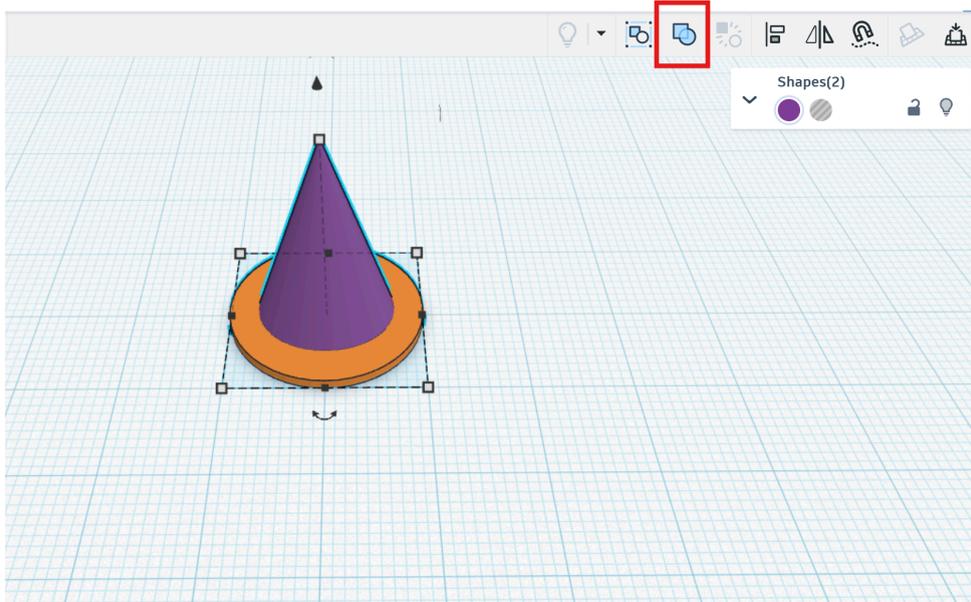
Rotate object



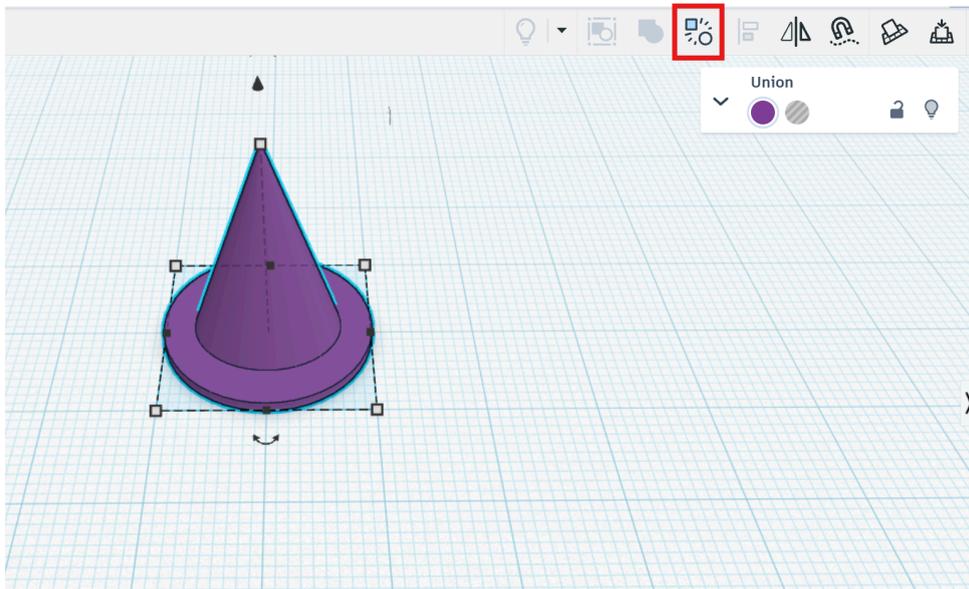
Move an object



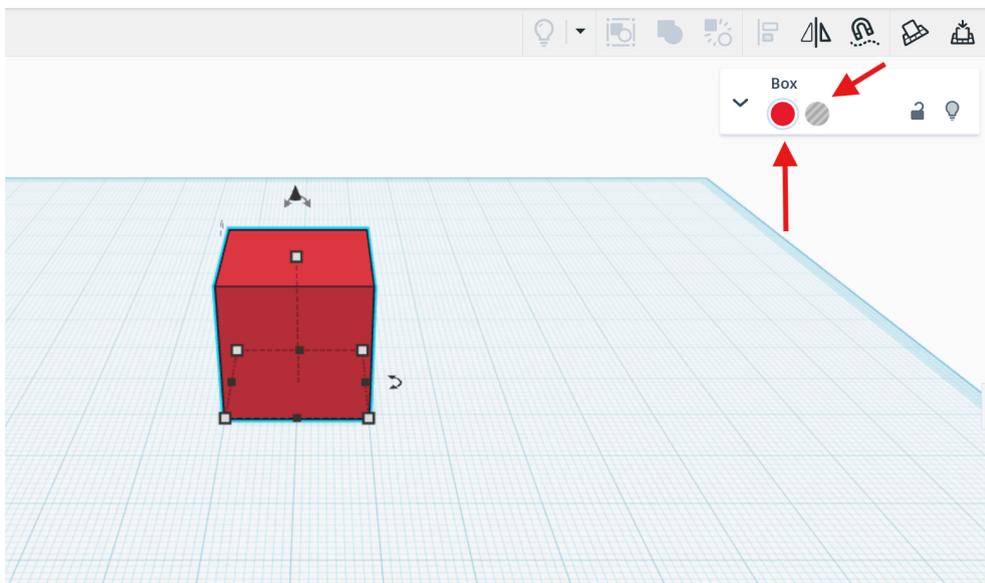
combining object



ungrouping

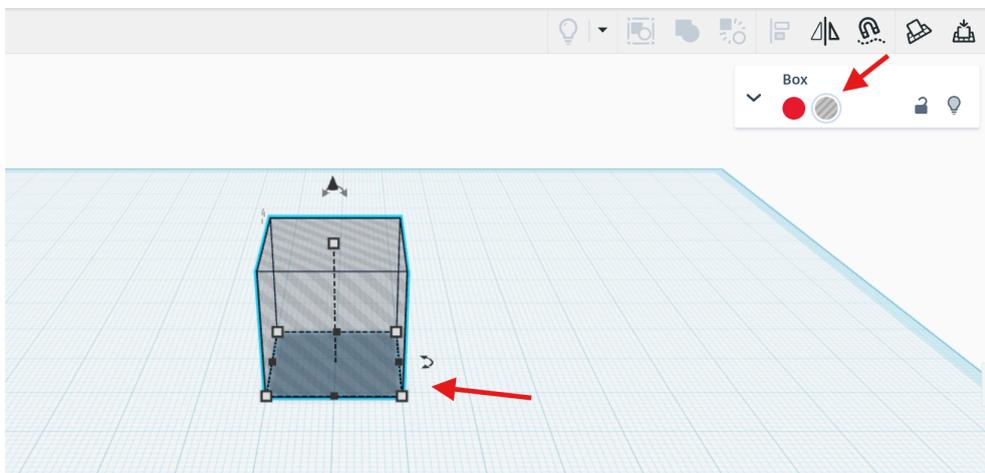


Object states
Solid state



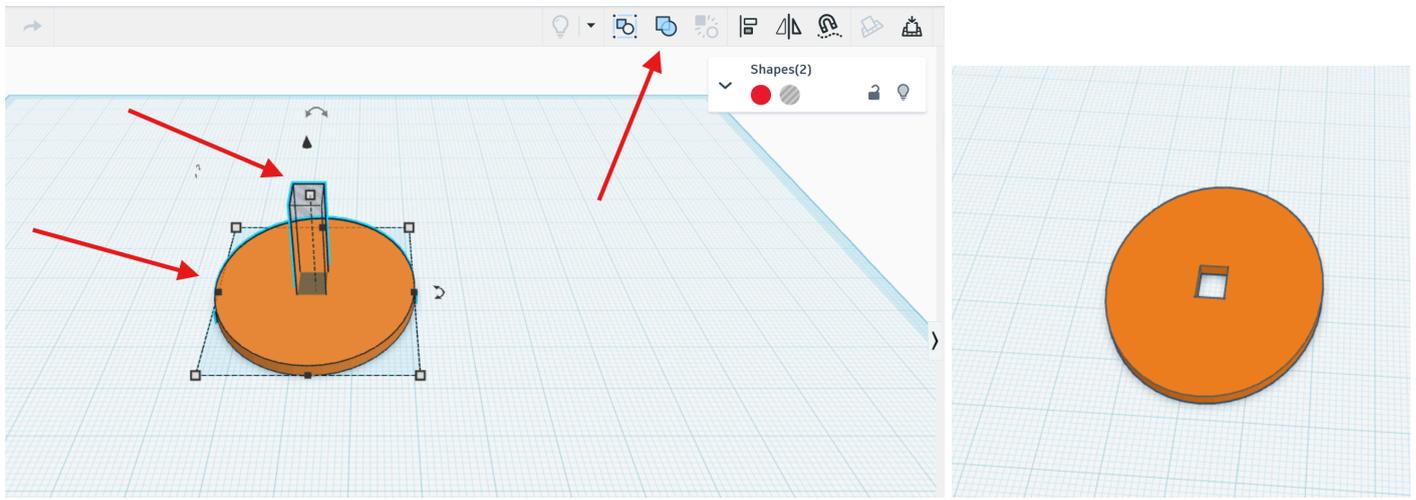
Hole state

In tinkercad you can change for every object the state.

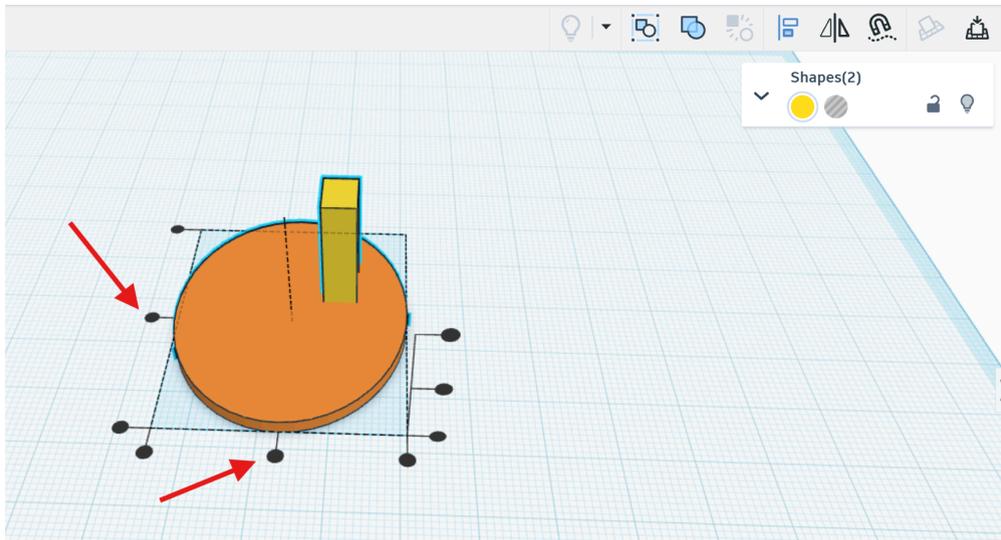
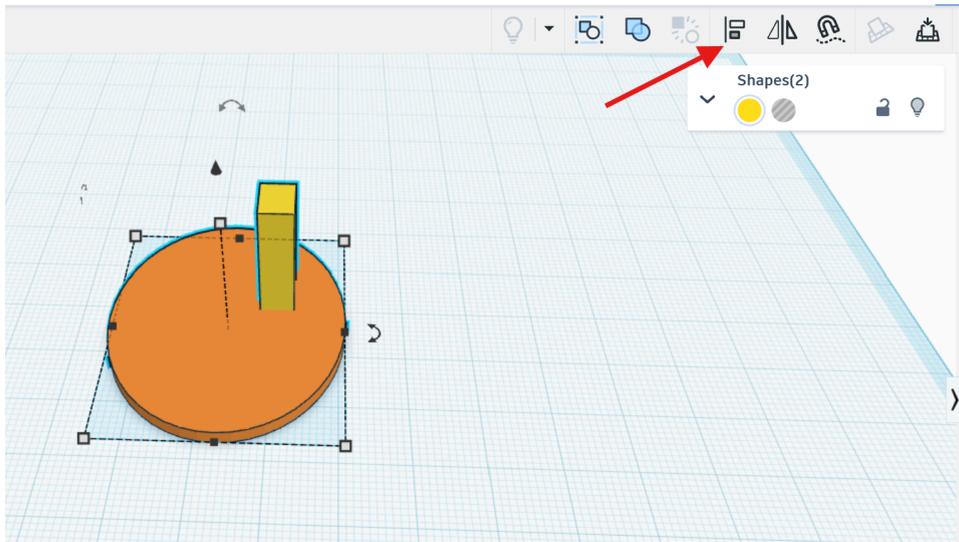


the hole state is used to distract one object from another. For example to drill a hole.

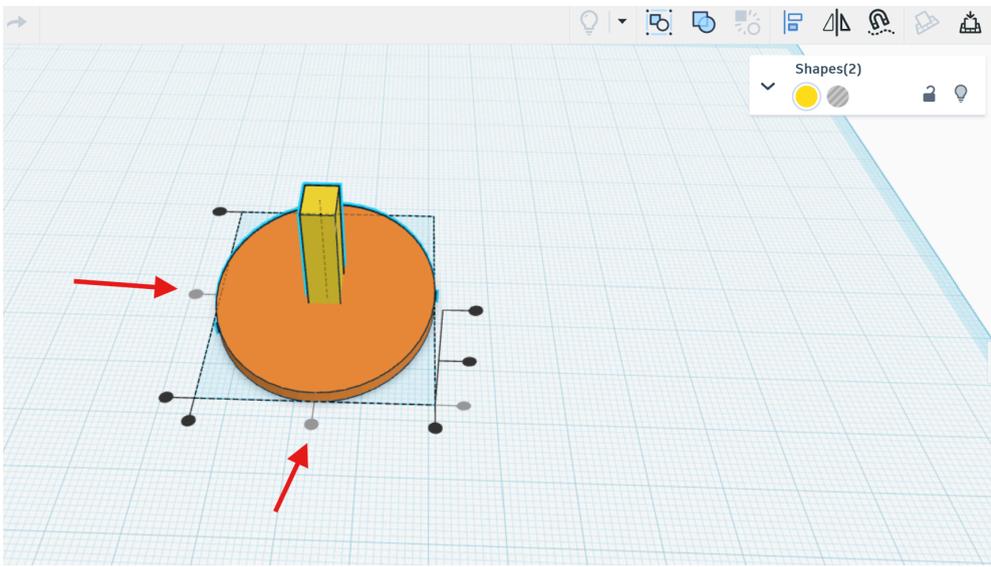
Place the hole object inside the object you want to make a hole. Mark both objects (with the mouth) and click on the union group button.



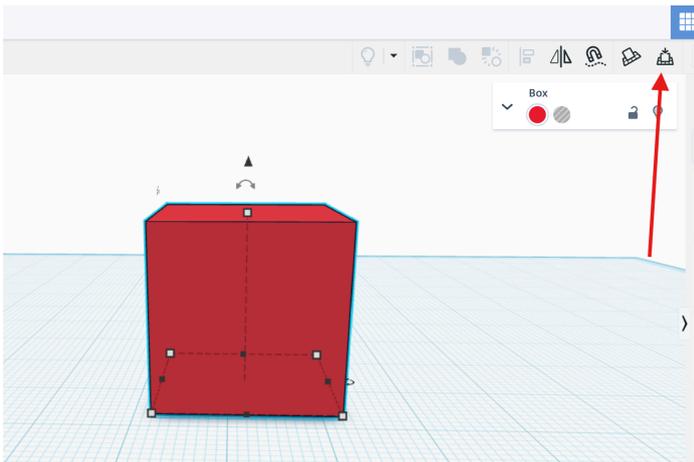
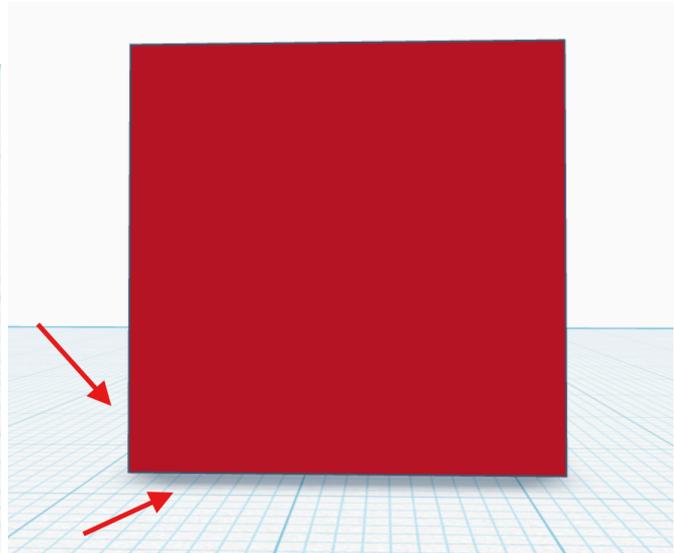
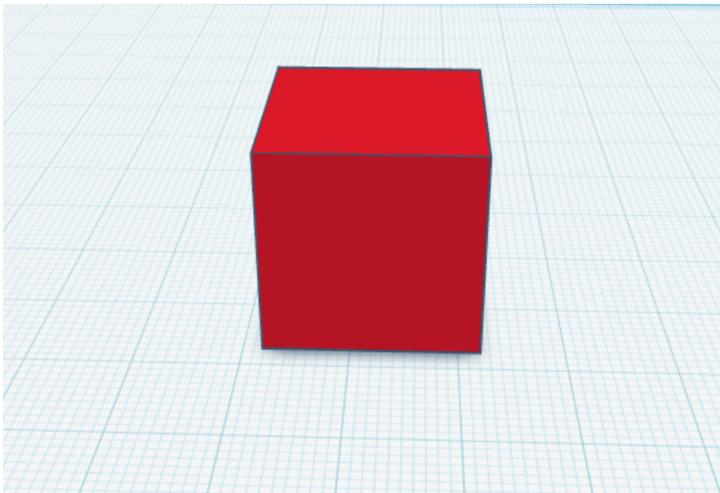
Aligning objects



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Mistakes to avoid
Object is not at the bottom



Object parts too small /thin

