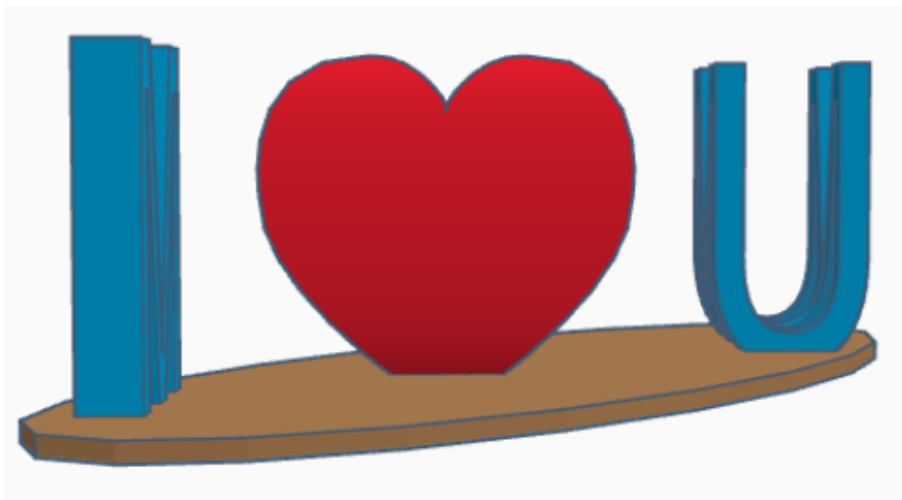


T I N
K E R
C A D

I love U MOM



**Front
view**



**Side
view**

Contents:

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Disclaimer:

Locations of objects move on a regular basis in TinkerCAD. Although locations of objects are stated, that is the location at the time of publication. This publication has no association with TinkerCAD and does not control when TinkerCAD moves objects.

To accommodate for objects moving locations, it is suggested to add the most used objects to “Favorites”. This acts as a shortcut to the object no matter where it is moved to. To add objects to Favorites, hover the mouse over the object and in the upper right corner, an outlined star will appear. Click on the star changing it to yellow in color. The object will now appear in the Favorites area.

M1:

Bring in a Text, located in Basic Shapes on the left 4 shapes down.
From now on this will be called the **M1**.

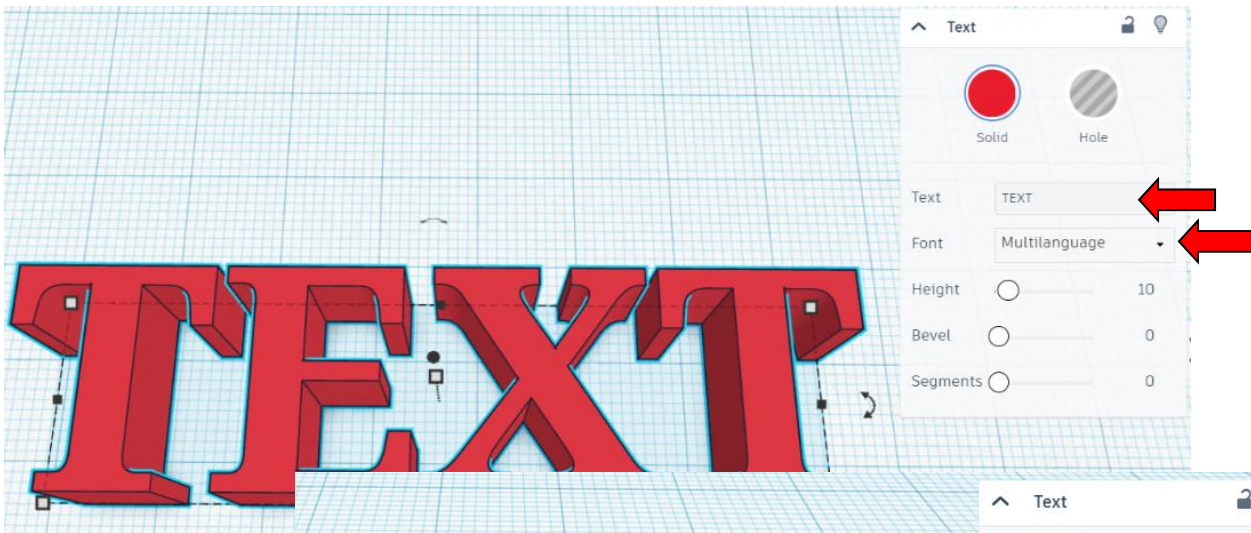


Change font and text:

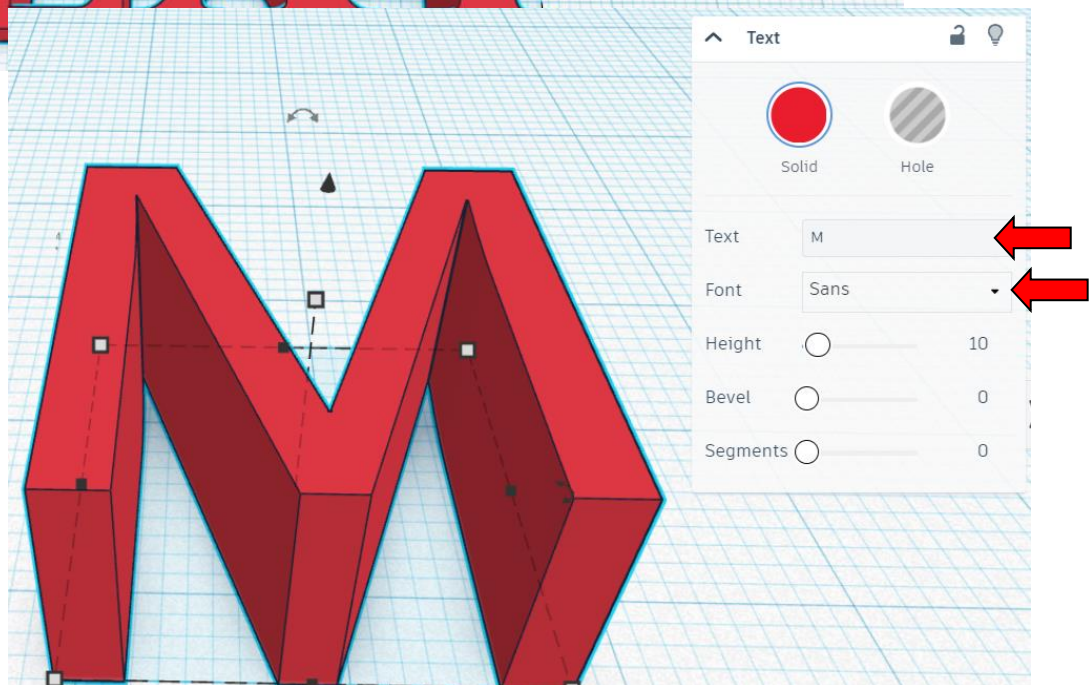
Select M1 and in the box change Text to M

And in the box font change Multilanguage to Sans

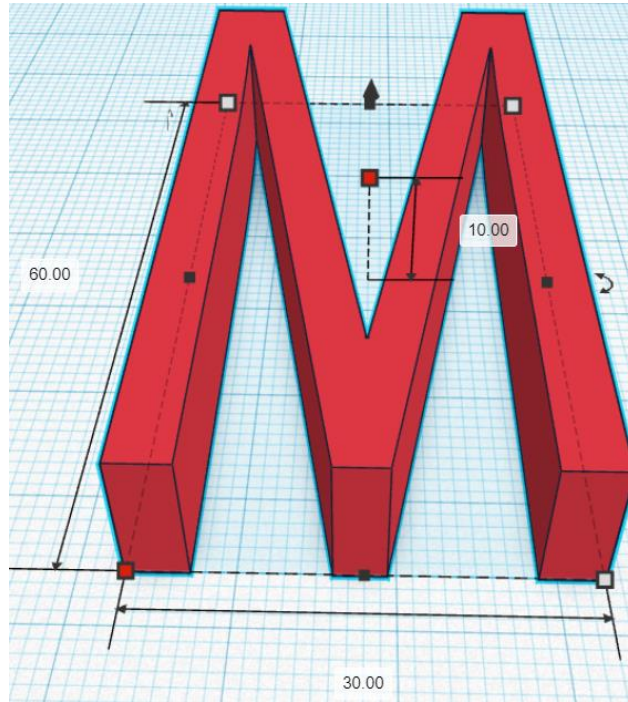
Before:



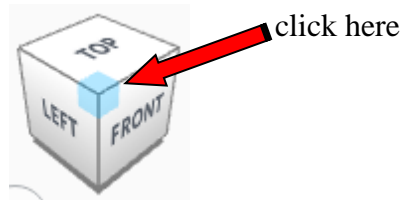
After:



Change the dimensions to M1:
30mm X direction,
60mm Y direction, and
10mm Z direction.

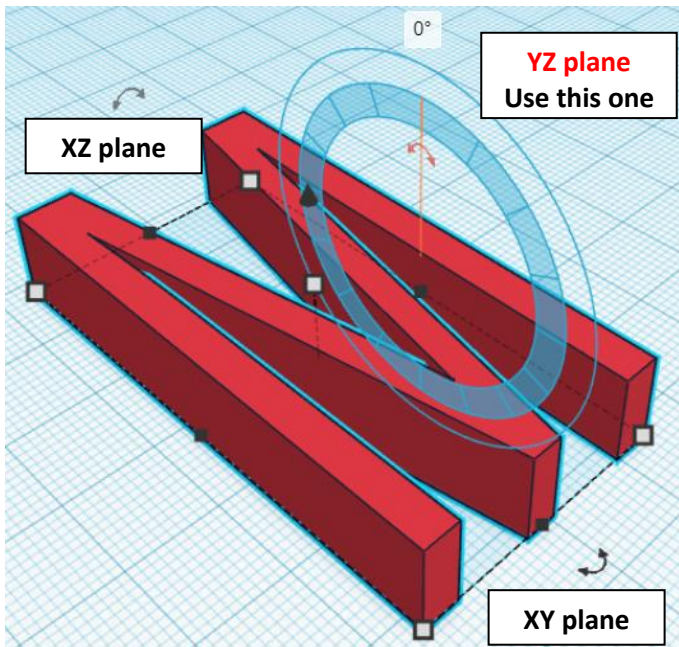


Go to TOP LEFT FRONT view for rotations

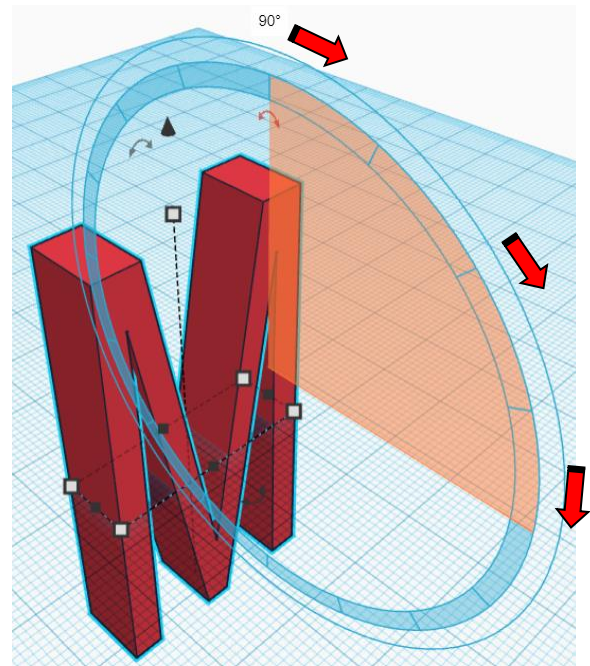


Rotate the M1 clockwise 90 degrees in YZ plane.

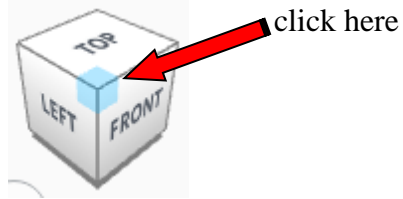
Before



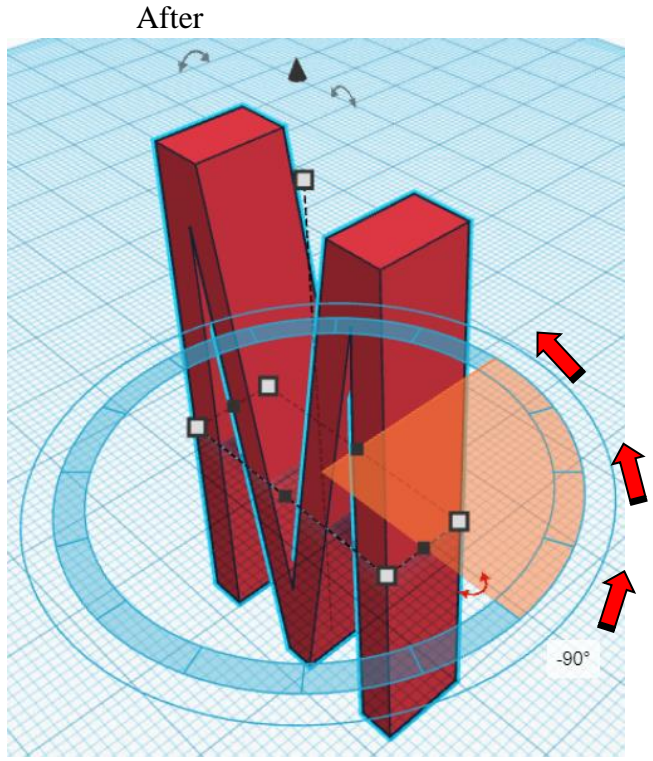
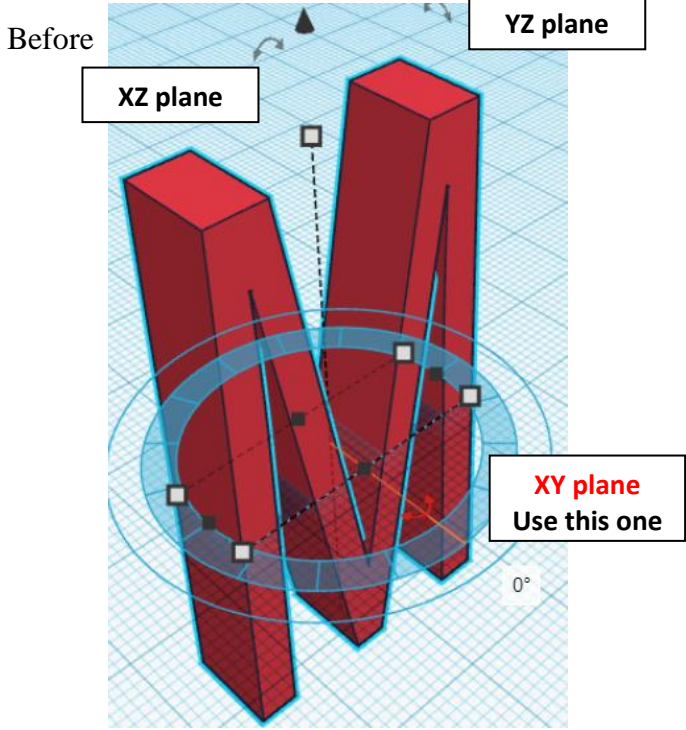
After



Go to TOP LEFT FRONT view for rotations

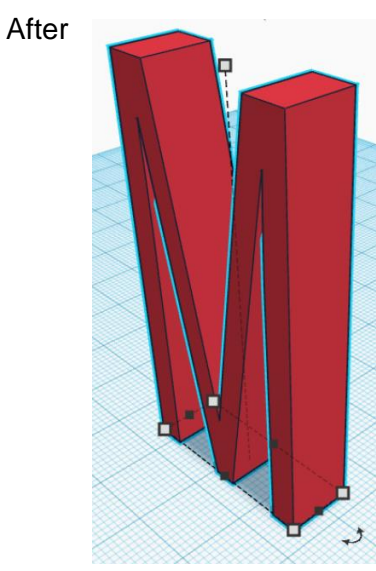
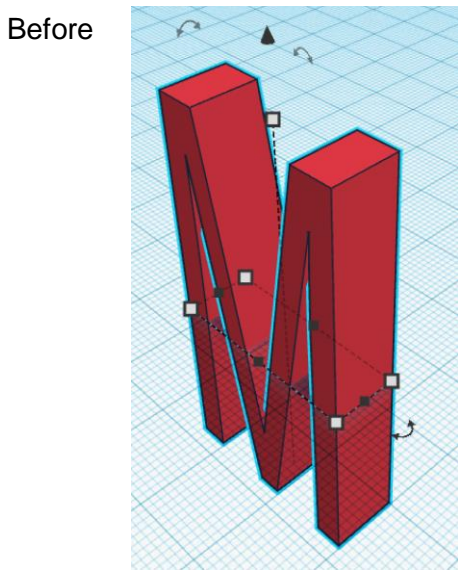


Rotate the M1 counter-clockwise 90 degrees in XY plane.



Set on Workplane:

Select the M1 and type "d" to set the M1 on the work plane.



Duplicate M1 1 time

The duplicate M1 will be called **M2**, set M2 off to the side, this will be used for the last box.

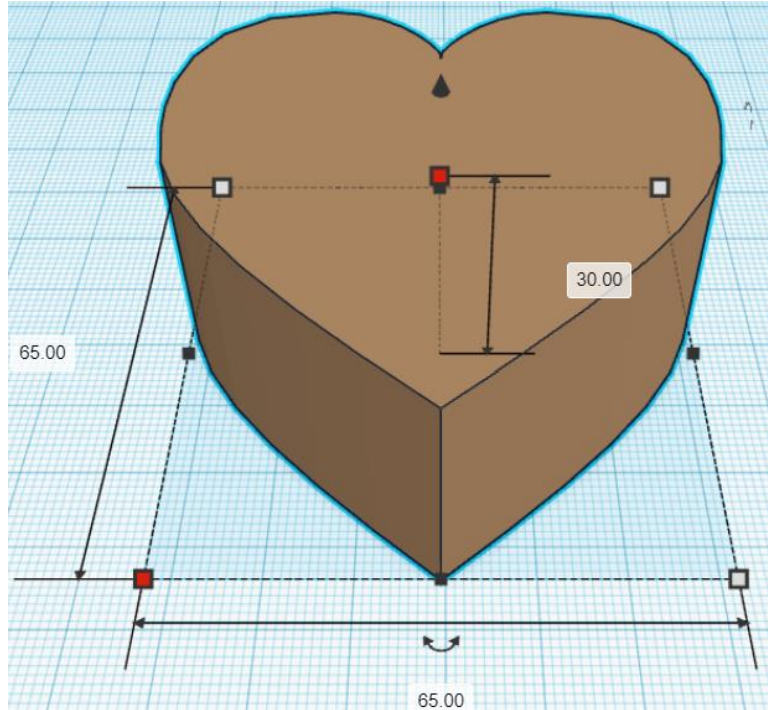
Heart:

Bring in a Heart, located in Basic Shapes on the right 6 shapes down.

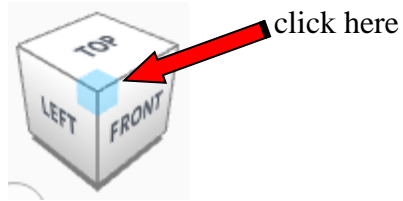
From now on this will be called the **Heart**.

Change the dimensions to Heart:

65mm X direction,
65mm Y direction, and
30mm Z direction.

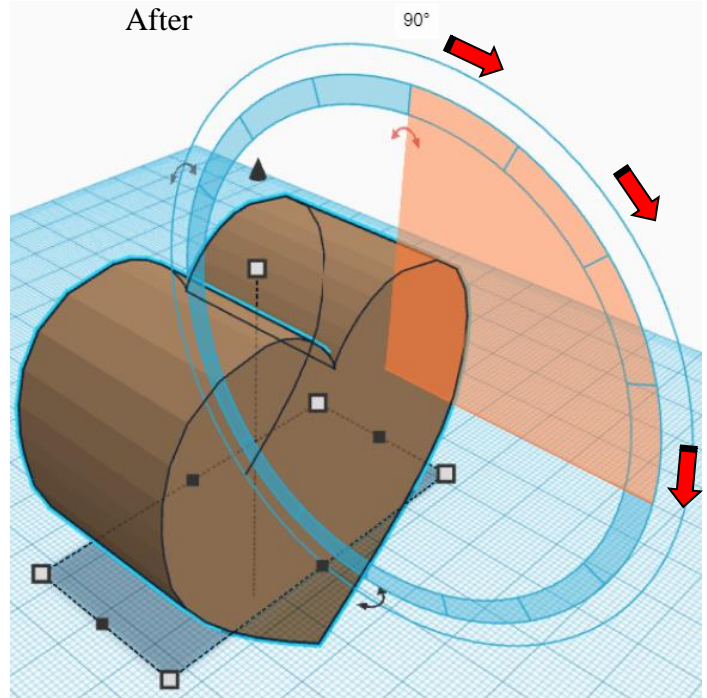
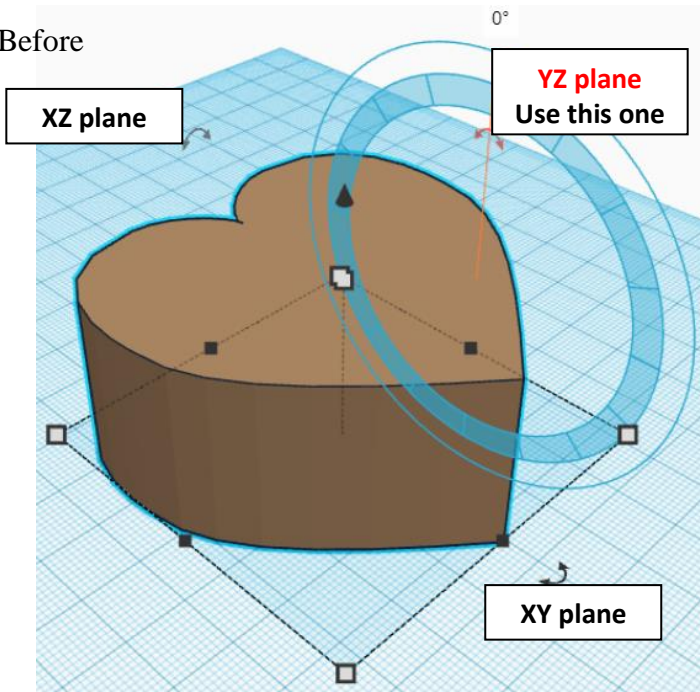


Go to TOP LEFT FRONT view for rotations



Rotate the Heart clockwise 90 degrees in YZ plane.

Before

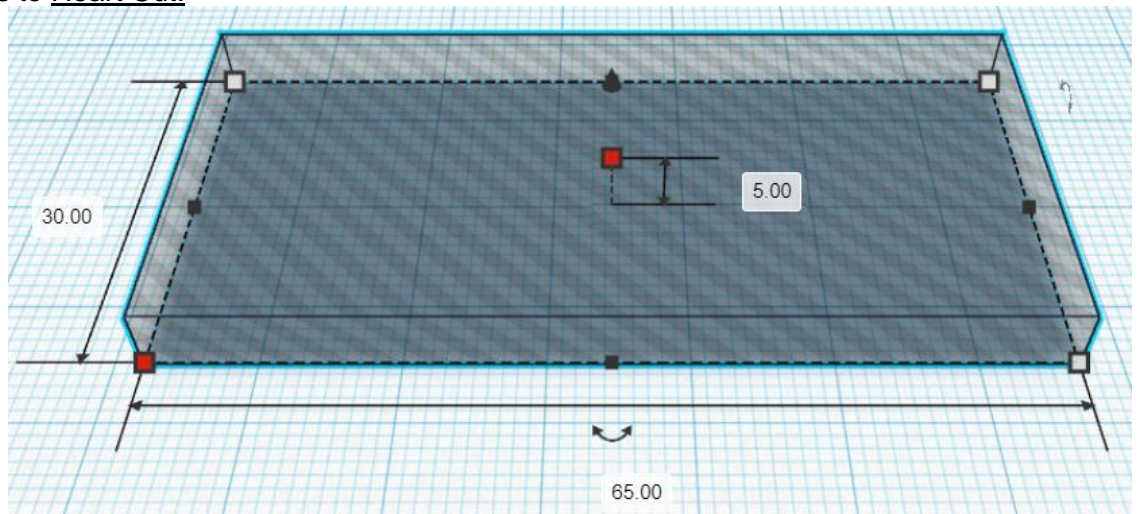


Heart Cut:

Bring in a Hole Box, located in Basic Shapes on the left 1 shape down.
From now on this will be called the **Heart Cut**.

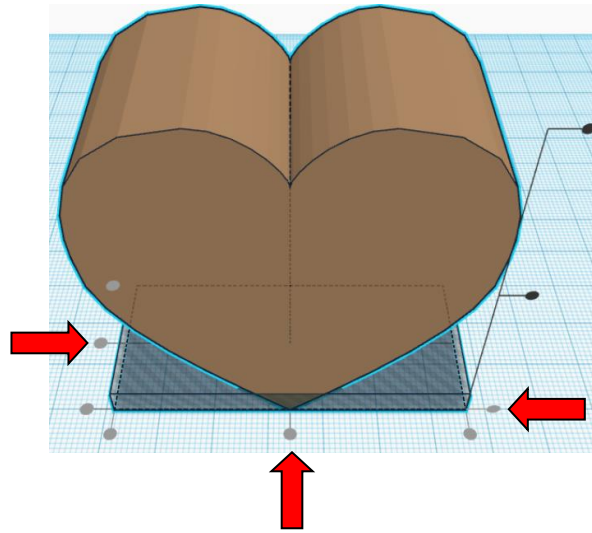
Change the dimensions to Heart Cut:

65mm X direction,
30mm Y direction, and
5mm Z direction.

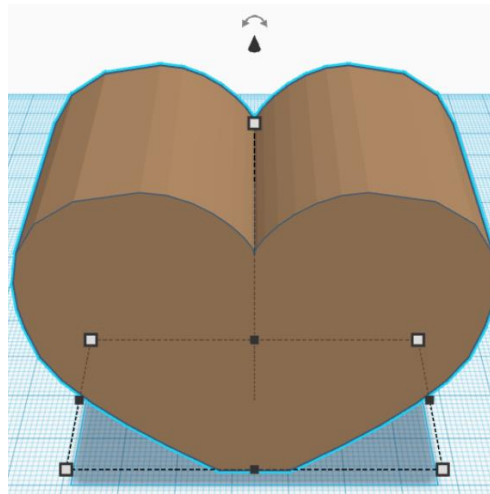


Align Heart and Heart Cut

centered in X direction,
centered of Y direction, and
bottom of Z direction.



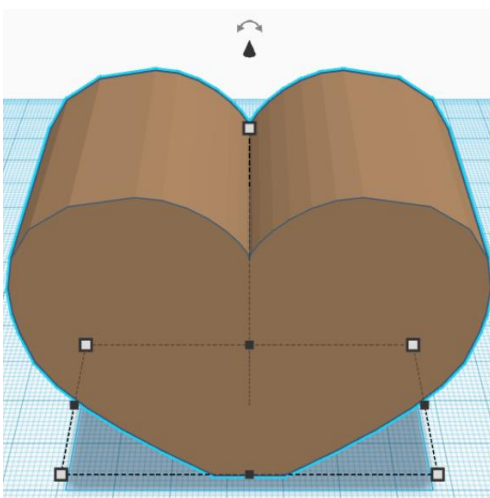
Group Heart and Heart Cut
From now on this will be called the **Heart**



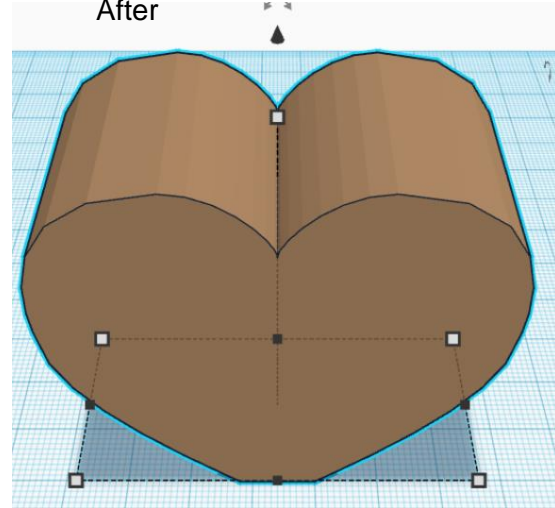
Set on Workplane:

Select the Heart and type "d" to set the Heart on the work plane.

Before



After



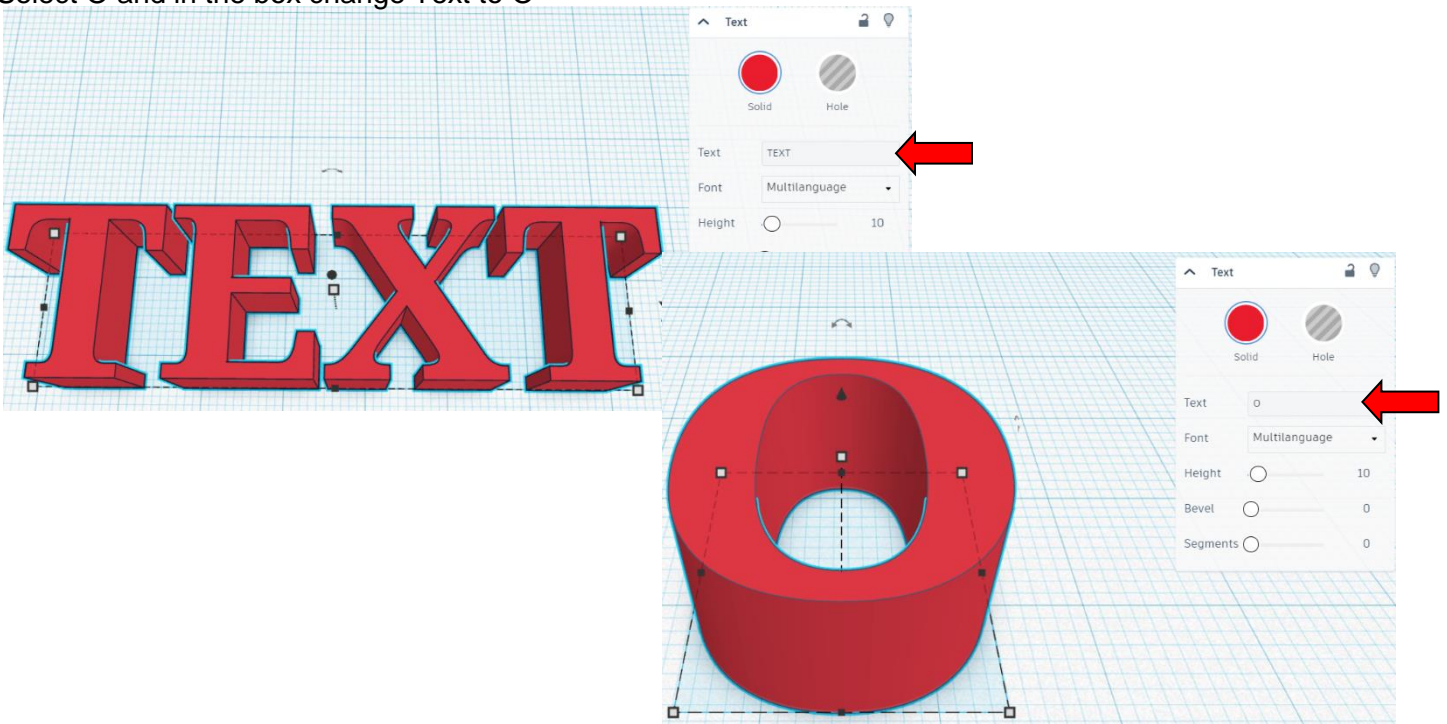
O:

Bring in a Text, located in Basic Shapes on the left 4 shapes down.
From now on this will be called the **O**.

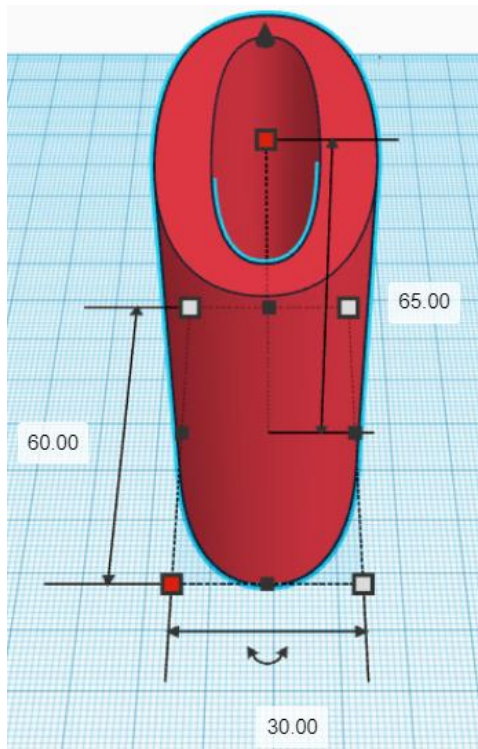


Change text:

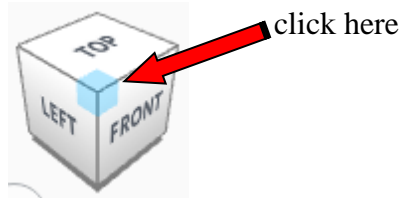
Select O and in the box change Text to O



Change the dimensions to:
30mm X direction,
60mm Y direction, and
65mm Z direction.

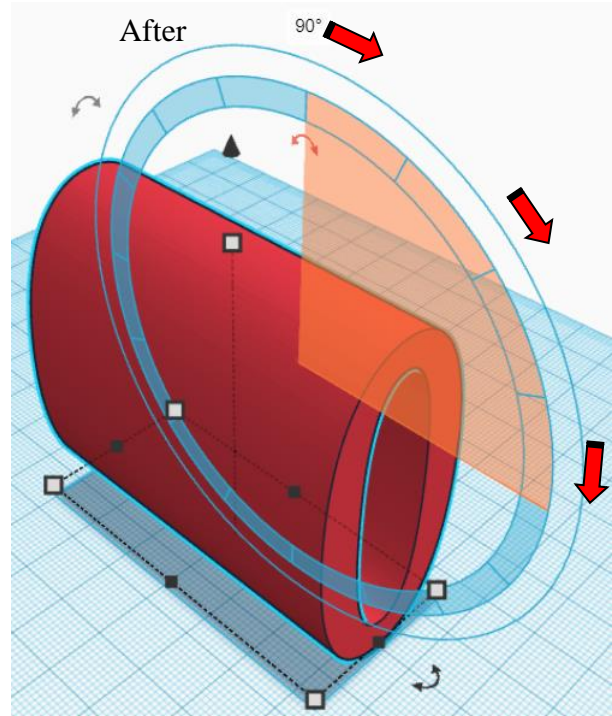
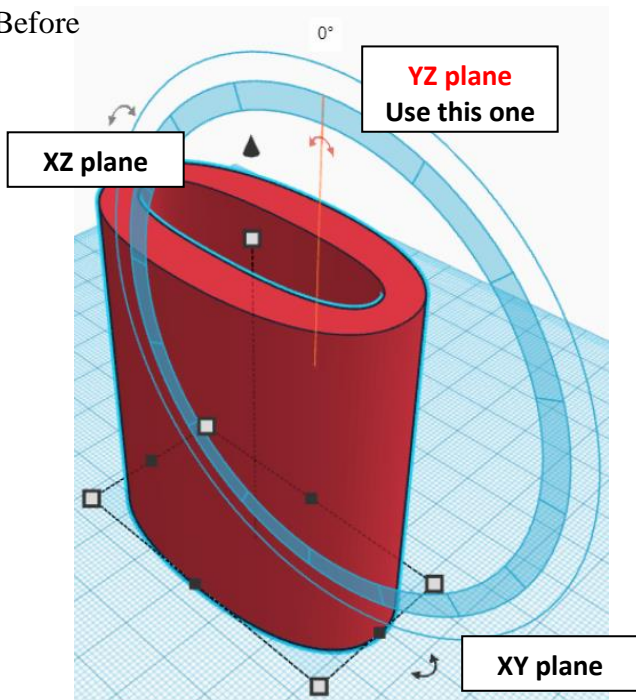


Go to TOP LEFT FRONT view for rotations

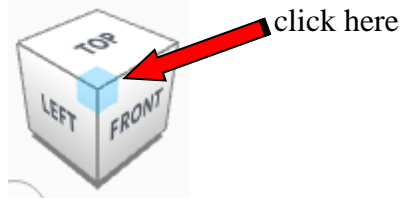


Rotate the Q clockwise 90 degrees in YZ plane.

Before

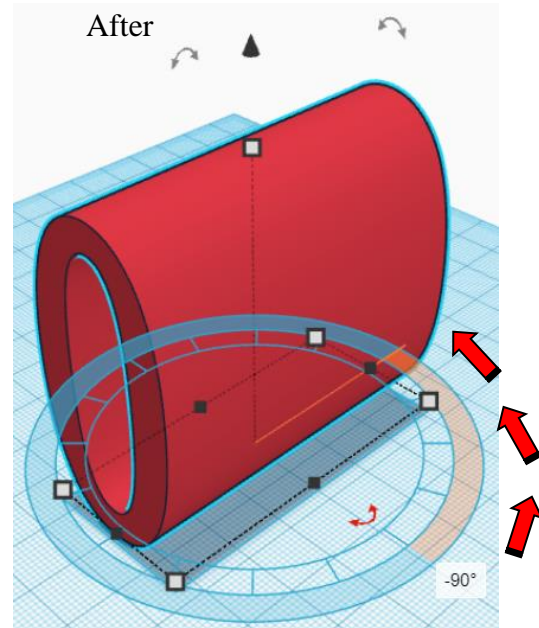
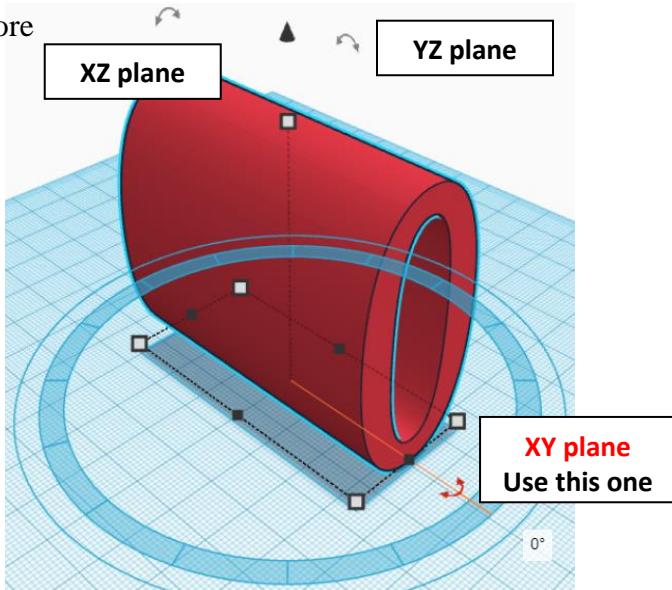


Go to TOP LEFT FRONT view for rotations



Rotate the Q counter-clockwise 90 degrees in XY plane.

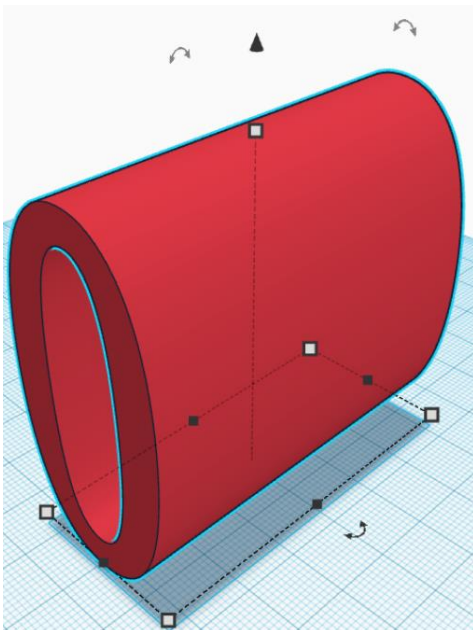
Before



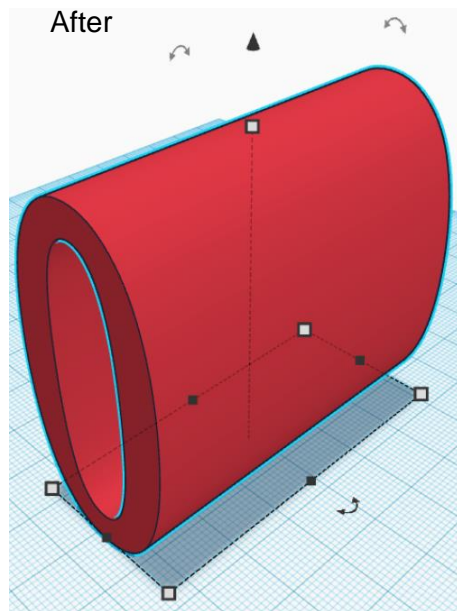
Set on Workplane:

Select the Q and type "d" to set the Q on the work plane.

Before



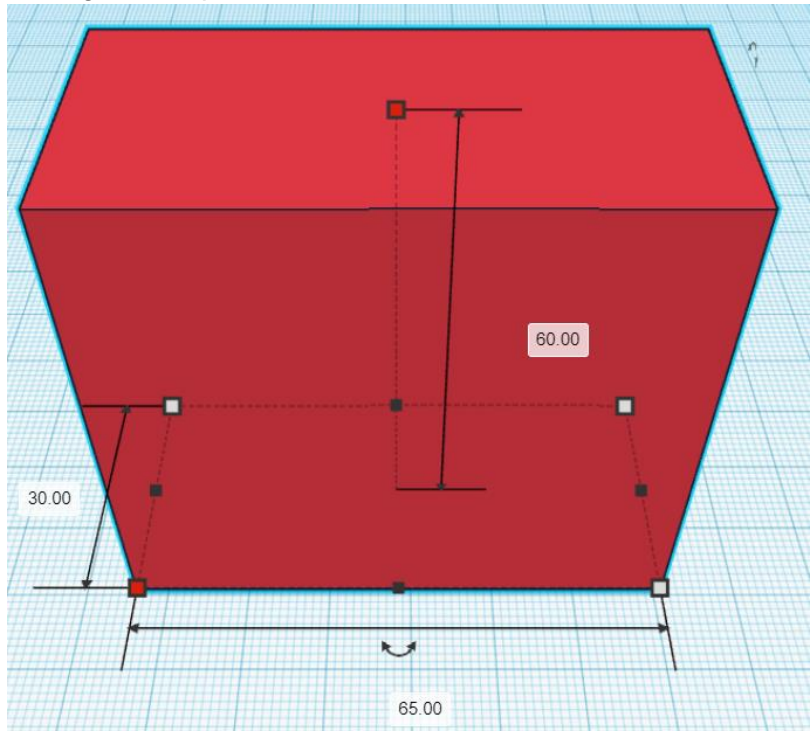
After



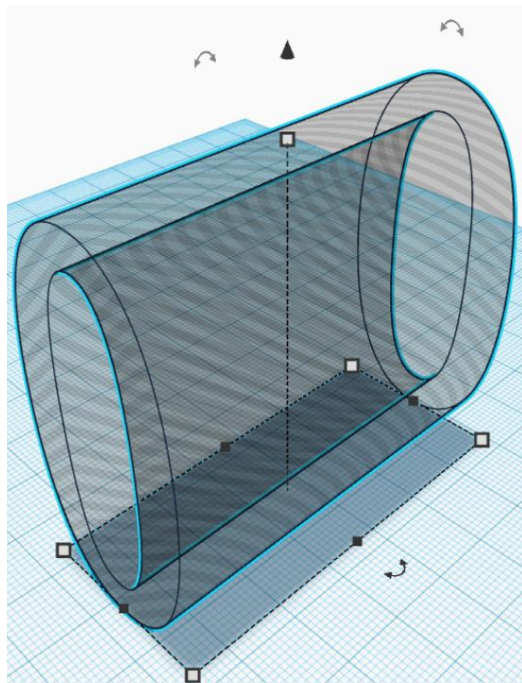
Box 1:

Bring in a Box, located in Basic Shapes on the right 1 shape down.
From now on this will be called the **Box 1**.

Change the dimensions to
65mm X direction,
30mm Y direction, and
60mm Z direction.



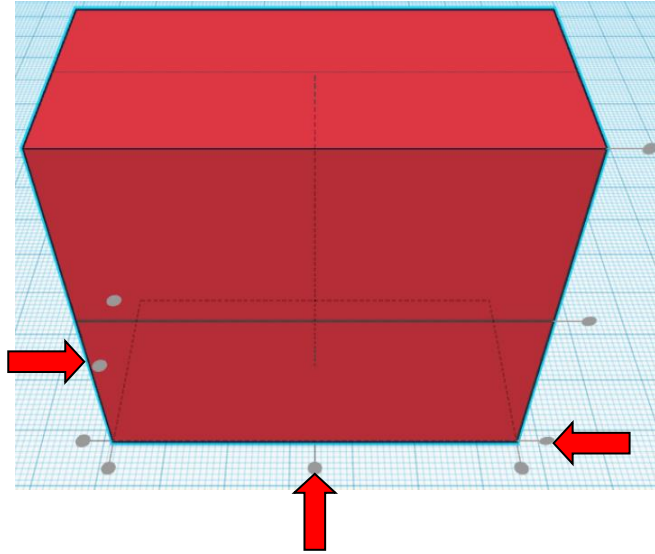
Change Q to Hole
by selecting Q and typing "h".



**Orthographic
view for clarity**

Align Box 1 and Q

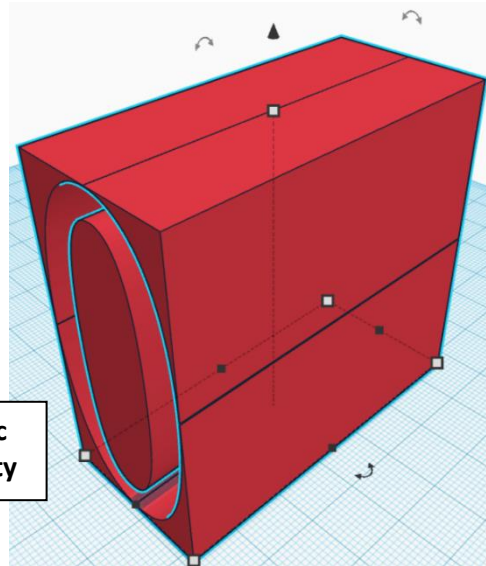
centered in X direction,
centered of Y direction, and
bottom of Z direction.



Group Box 1 and Q

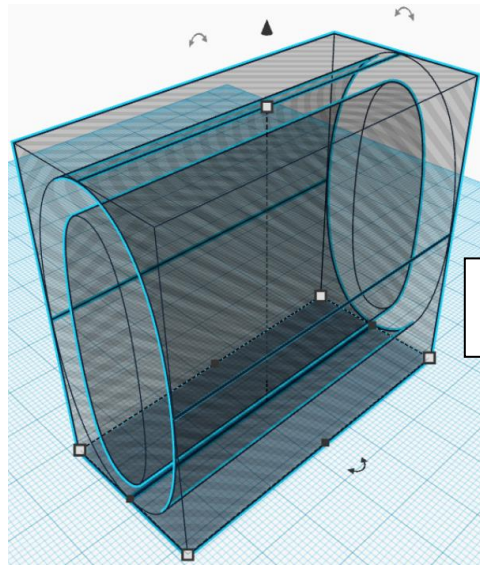
From now on this will be called the **Box 1 cutout**

Orthographic
view for clarity



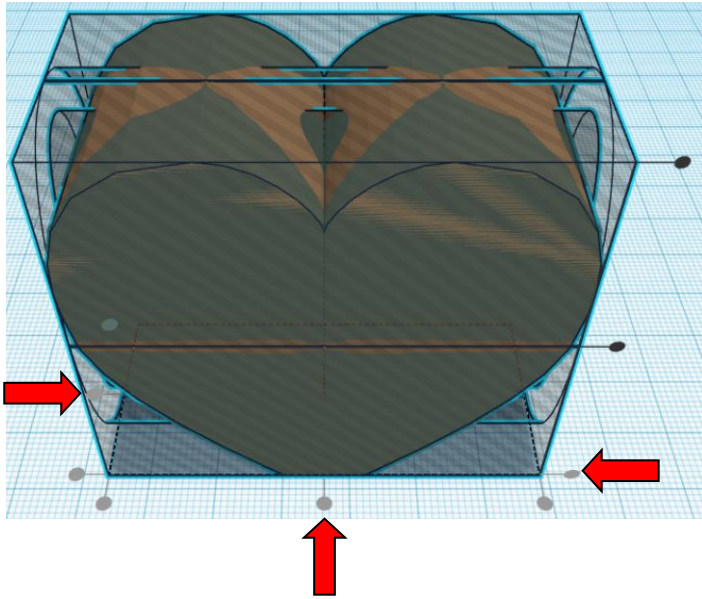
Change Box 1 cutout to **Hole**
by selecting Box 1 cutout and typing "h".

Orthographic
view for clarity



Align Box 1 cutout and Heart

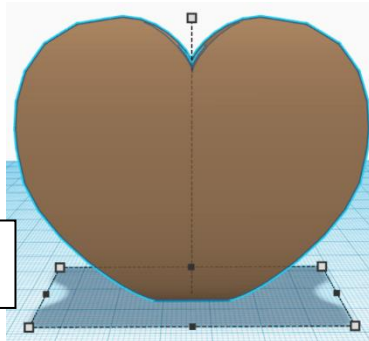
centered in X direction,
centered of Y direction, and
bottom of Z direction.



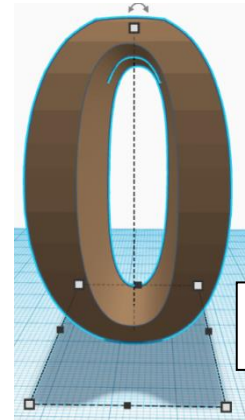
Group Box 1 cutout and Heart

From now on this will be called the **Heart-O**

Front
view



Side
view



U:

Bring in a Text, located in Basic Shapes on the left 4 shapes down.
From now on this will be called the **U**.

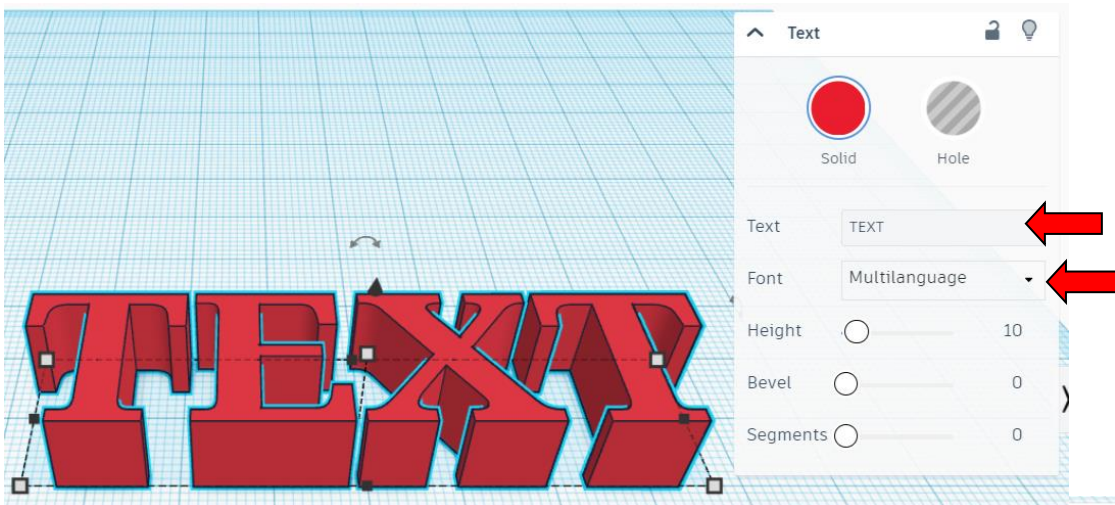


Change text:

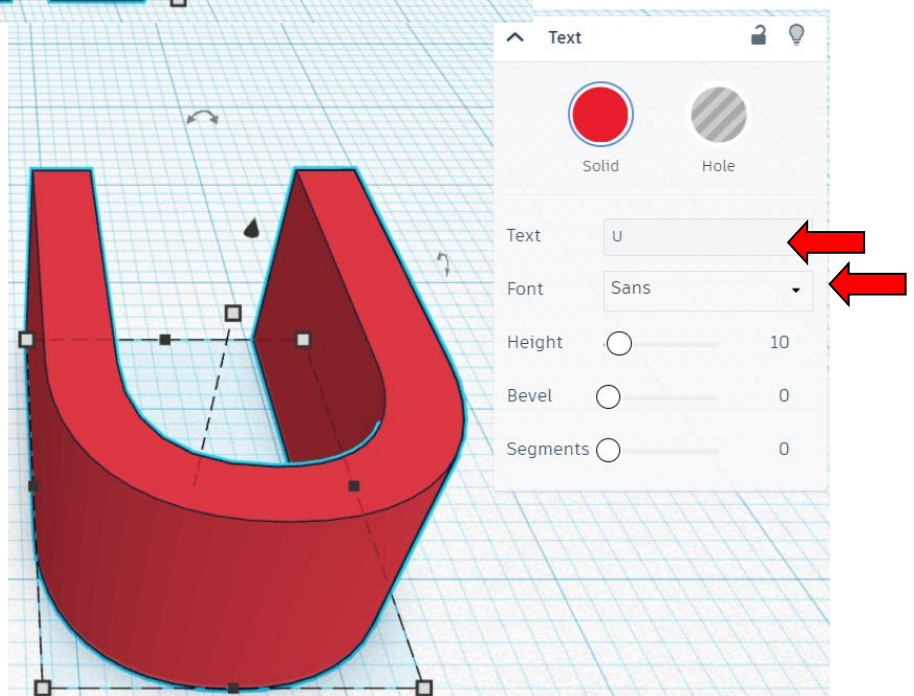
Select U and in the box change Text to U

And in the box font change Multilanguage to Sans

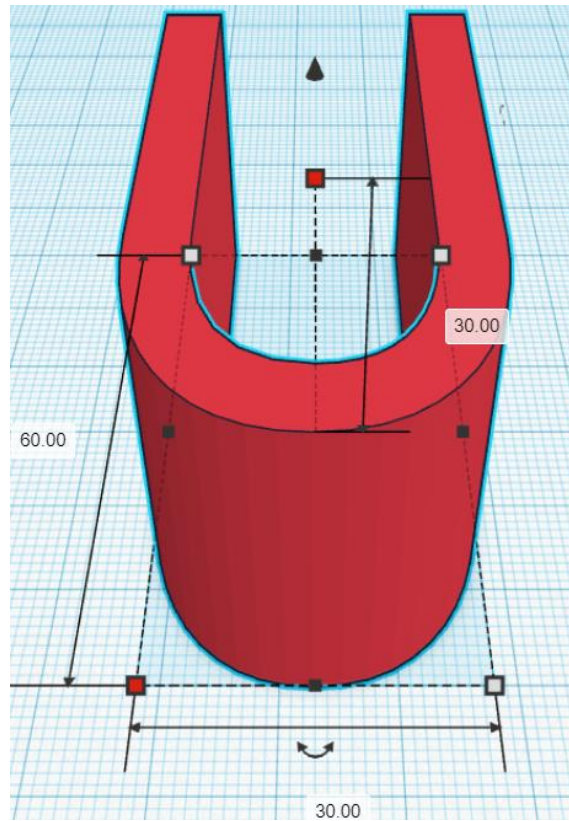
Before:



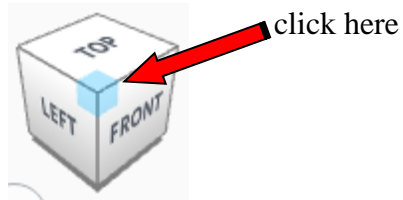
After:



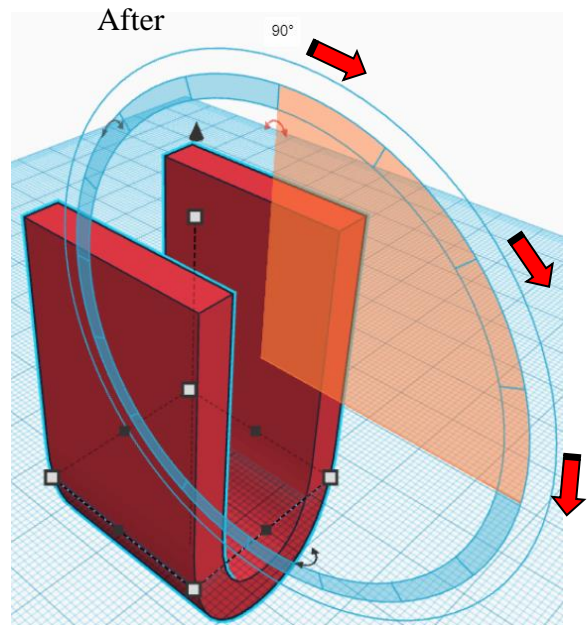
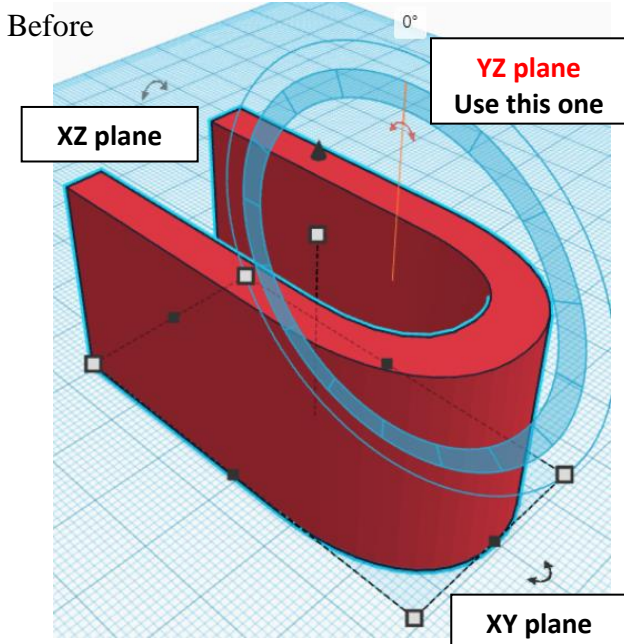
Change the dimensions to:
30mm X direction,
60mm Y direction, and
30mm Z direction.



Go to TOP LEFT FRONT view for rotations



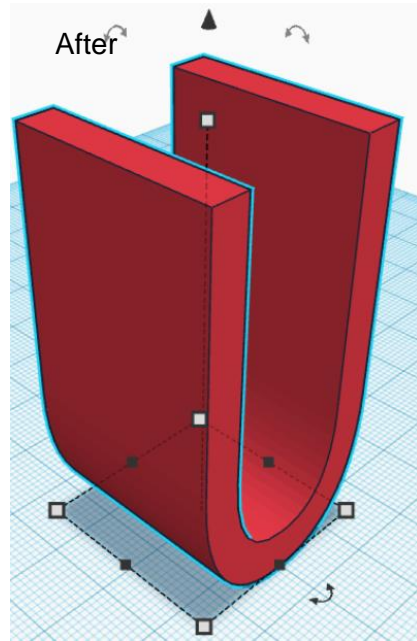
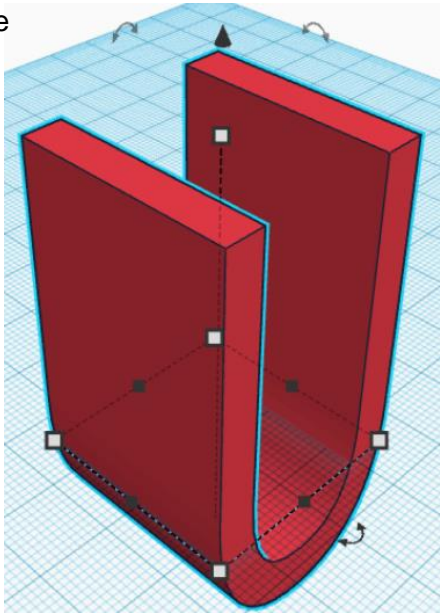
Rotate the U clockwise 90 degrees in YZ plane.



Set on Workplane:

Select the U and type "d" to set the U on the work plane.

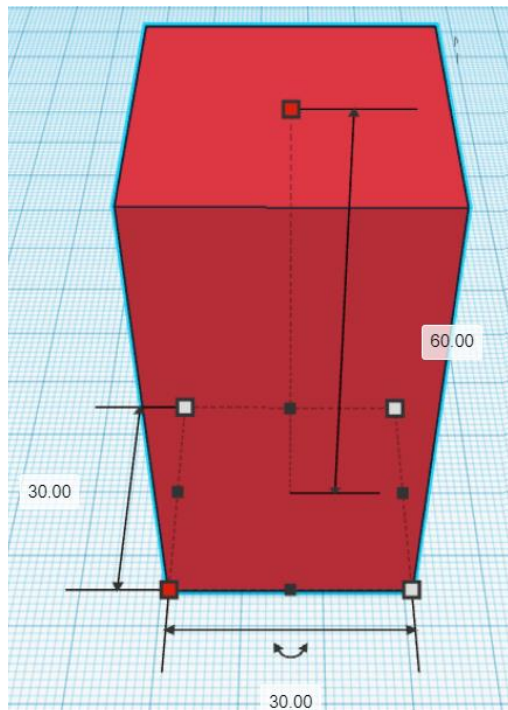
Before



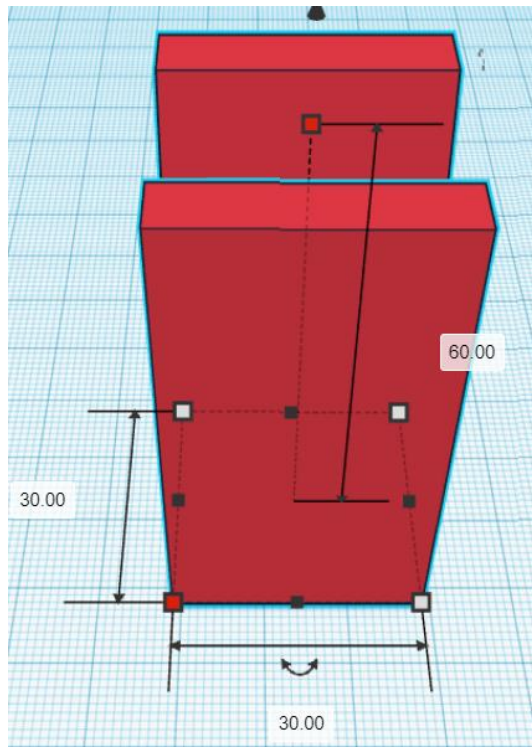
Box 2:

Bring in a Box, located in Basic Shapes on the right 1 shape down.
From now on this will be called the **Box 2**.

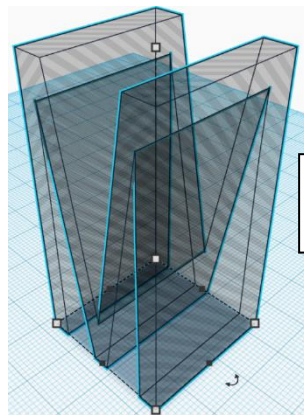
Change the dimensions to Box 2:
30mm X direction,
30mm Y direction, and
60mm Z direction.



Change the dimensions to M2:
30mm X direction,
30mm Y direction, and
60mm Z direction.



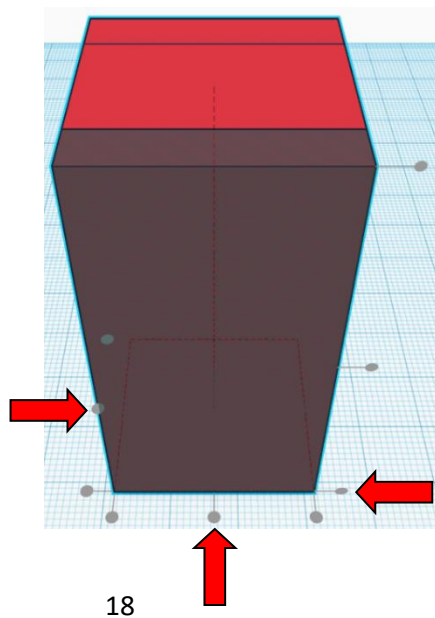
Change M2 to **Hole**
by selecting M2 and typing "h".



Orthographic
view for clarity

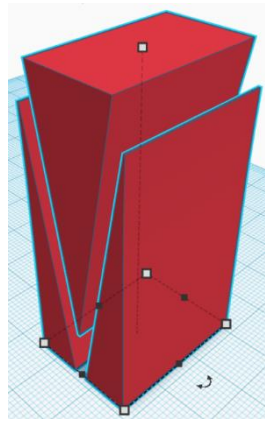
Align Box 2 and M2

centered in X direction,
centered of Y direction, and
bottom of Z direction.



Group Box 2 and M2

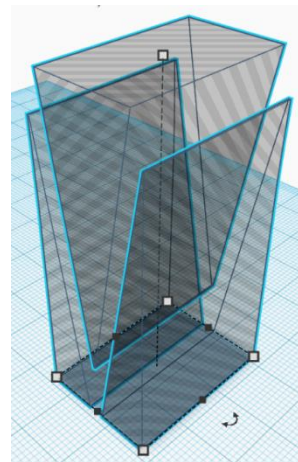
From now on this will be called the **Box 2 cutout**



Orthographic
view for clarity

Change Box 2 cutout to Hole

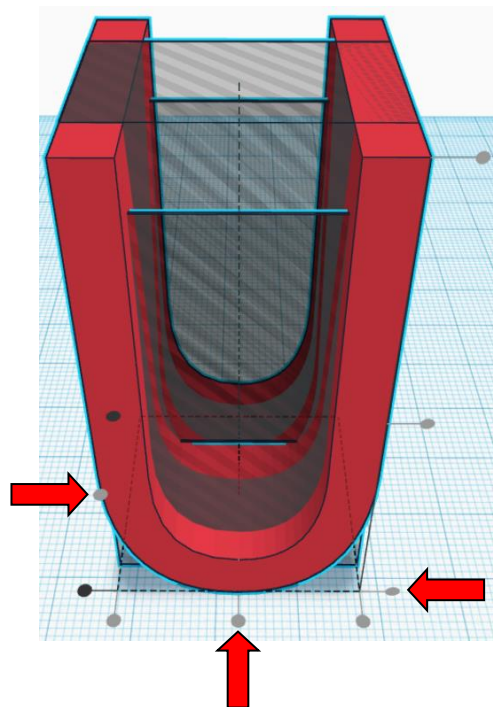
by selecting Box 2 cutout and typing "h".



Orthographic
view for clarity

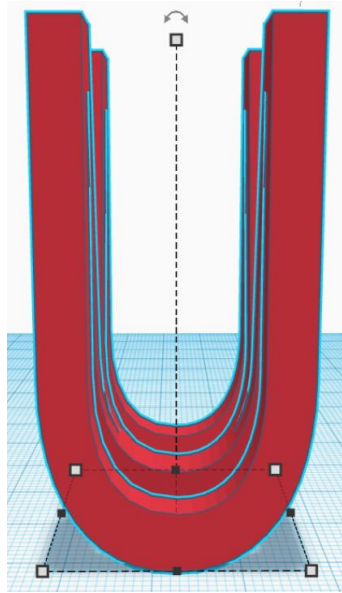
Align Box 2 cutout and U

centered in X direction,
centered of Y direction, and
bottom of Z direction.

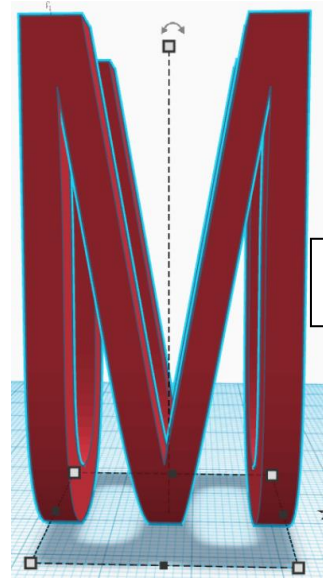


Group Box 2 cutout and U
From now on this will be called the **U-M**

Front
view

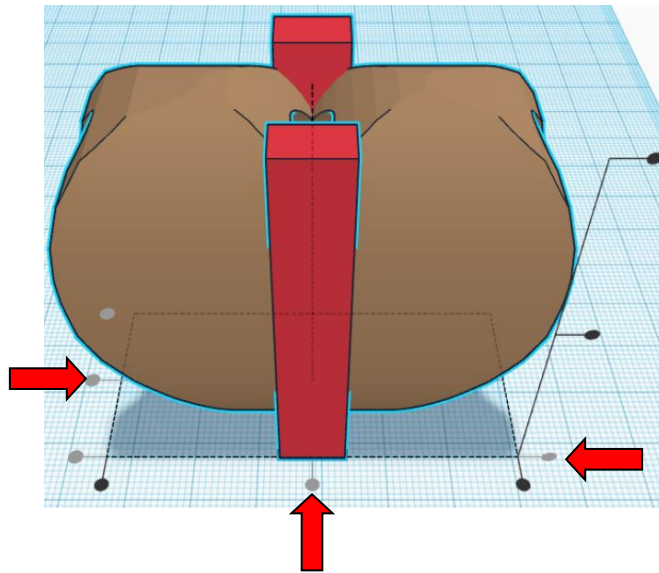


Side
view



Align I-M and Heart-O

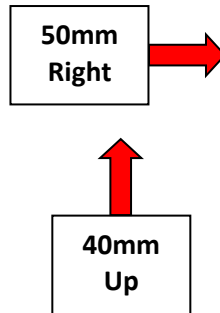
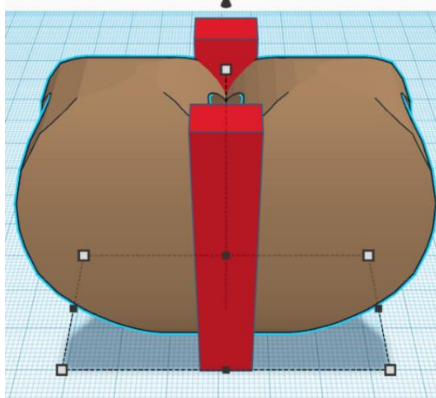
centered in X direction,
centered of Y direction, and
bottom of Z direction.



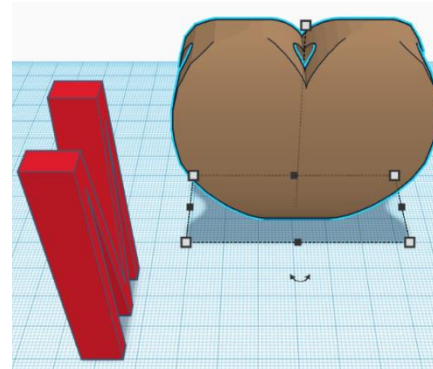
Move Heart-O (Must be in home view for this to work!)
move right in positive X direction 50mm
and
move back in positive Y direction 40mm

Hint: Select Heart-O and push right arrow key 50 times,
Then Select Heart-O and push up arrow key 40 times.
or
Select Heart-O and hold down shift and push right arrow key 5 times,
Then Select Heart-O and hold down shift and push up arrow key 4 times

Before

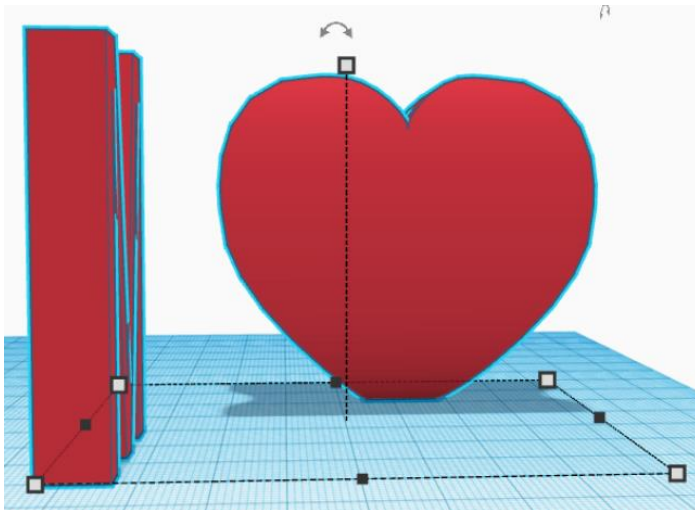


After

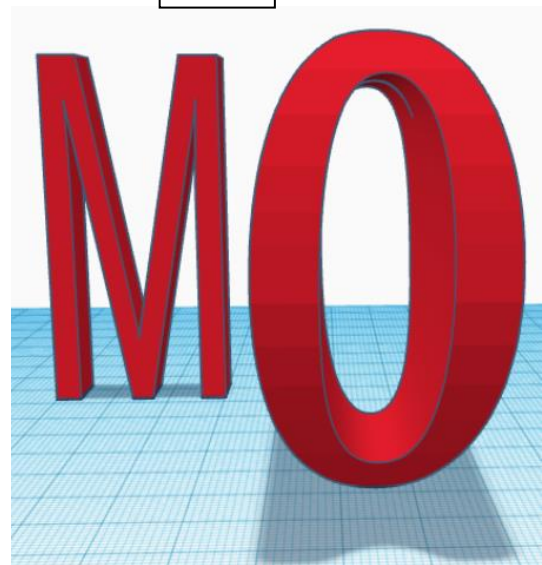


Group I-M and Heart-O
From now on this will be called the **I-Heart & M-O**

Front
view

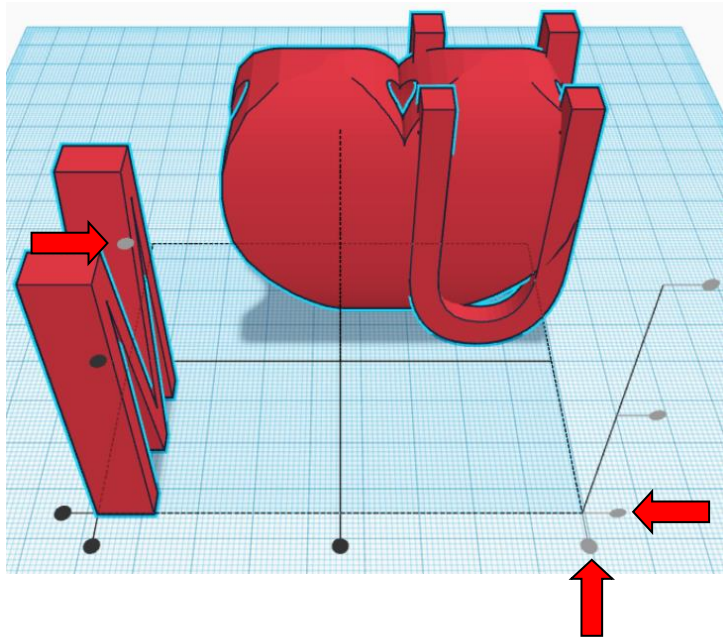


Side
view



Align I-Heart & M-O and U-M

right in X direction,
back of Y direction, and
bottom of Z direction.

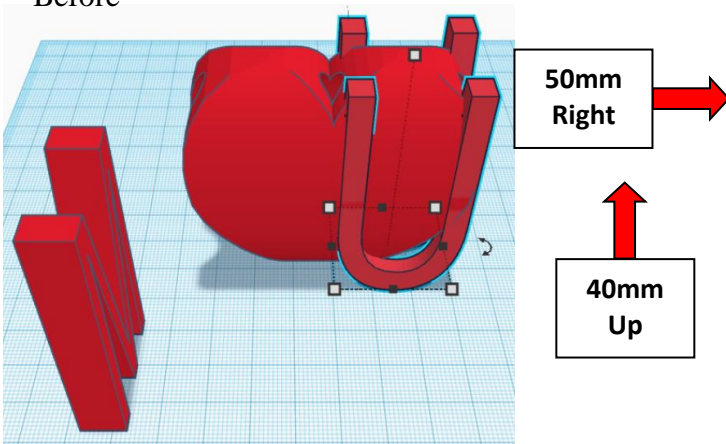


Move U-M (Must be in home view for this to work!)

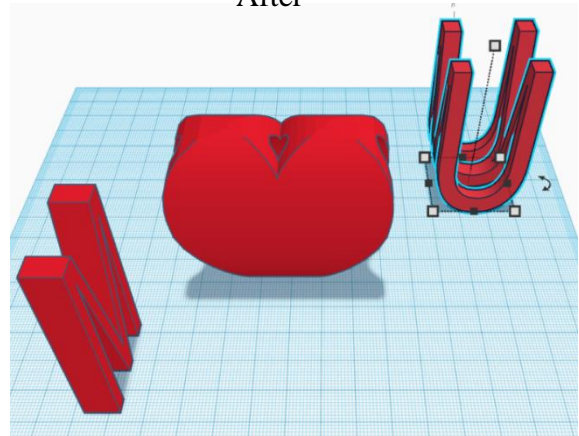
move right in positive X direction 50mm
and
move back in positive Y direction 40mm

Hint: Select U-M and push right arrow key 50 times,
Then Select U-M and push up arrow key 40 times.
or
Select U-M and hold down shift and push right arrow key 5 times,
Thwn Select U-M and hold down shift and push up arrow key 4 times

Before



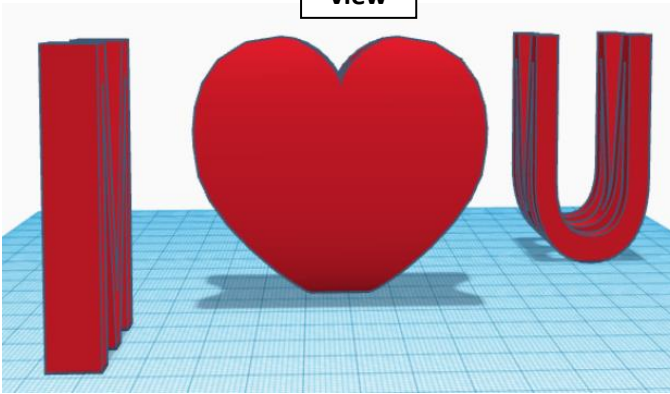
After



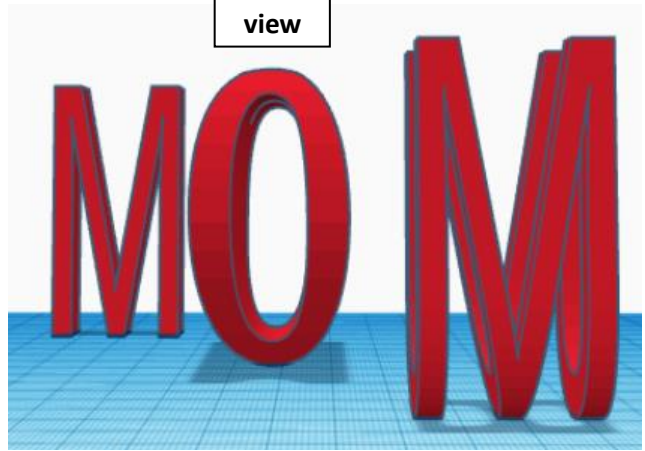
Group I-Heart & M-O and U-M

From now on this will be called the **I love you mom**

Front view



Side view

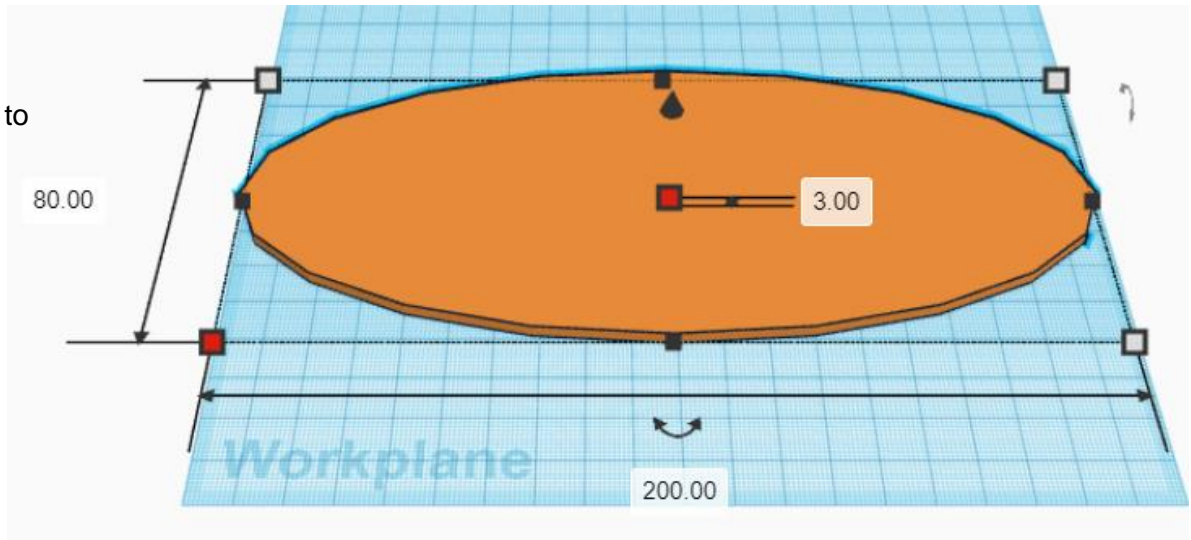


Stand:

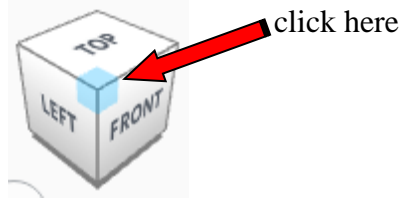
Bring in a Cylinder, located in Basic Shapes on the left 2 shape down.

From now on this will be called the **Stand**.

Change the dimensions to 200mm X direction, 80mm Y direction, and 3mm Z direction.

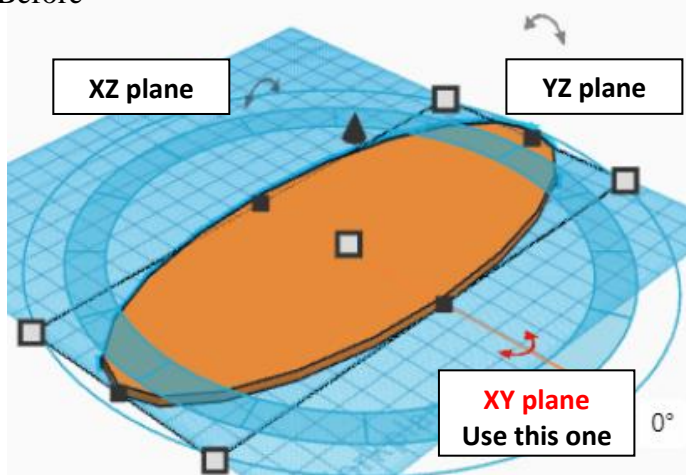


Go to TOP LEFT FRONT view for rotations

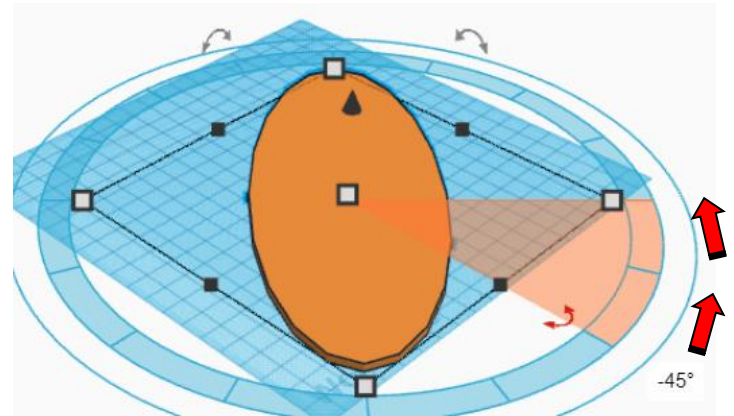


Rotate the Stand counter-clockwise 45 degrees in XY plane.

Before

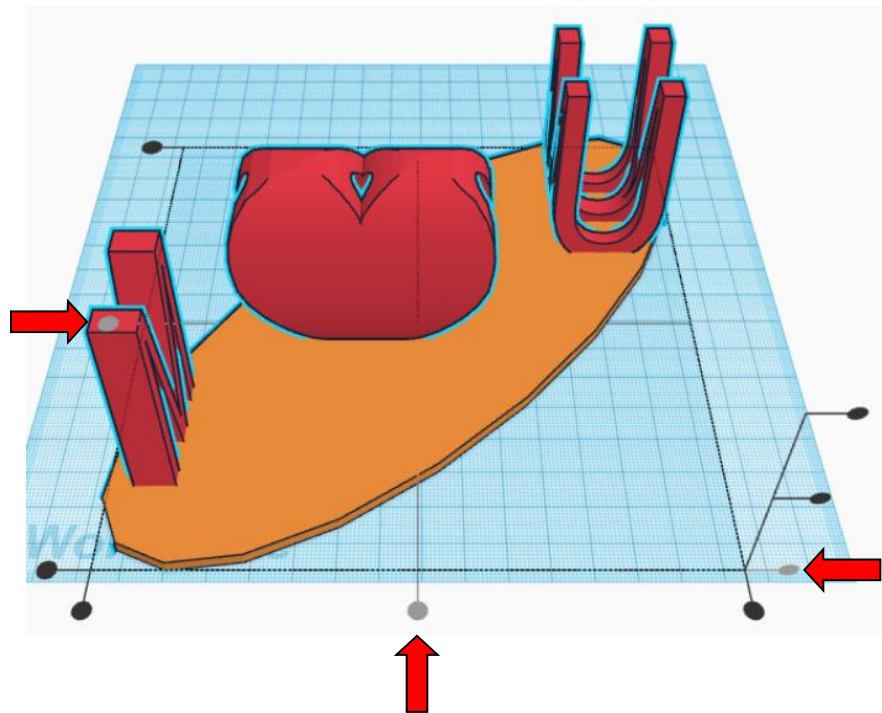


After



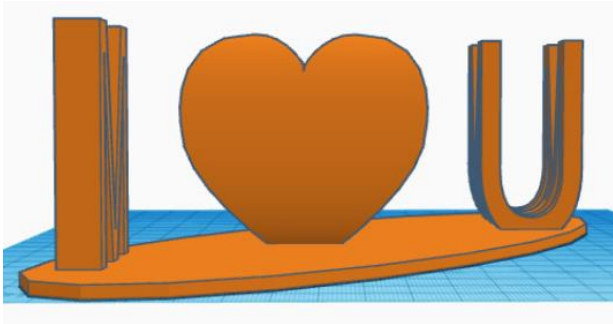
Align I love you mom and Stand

centered in X direction,
centered of Y direction, and
bottom of Z direction.



Group I love you mom and Stand
From now on this will be called the **I love you mom**

Front
view



Side
view



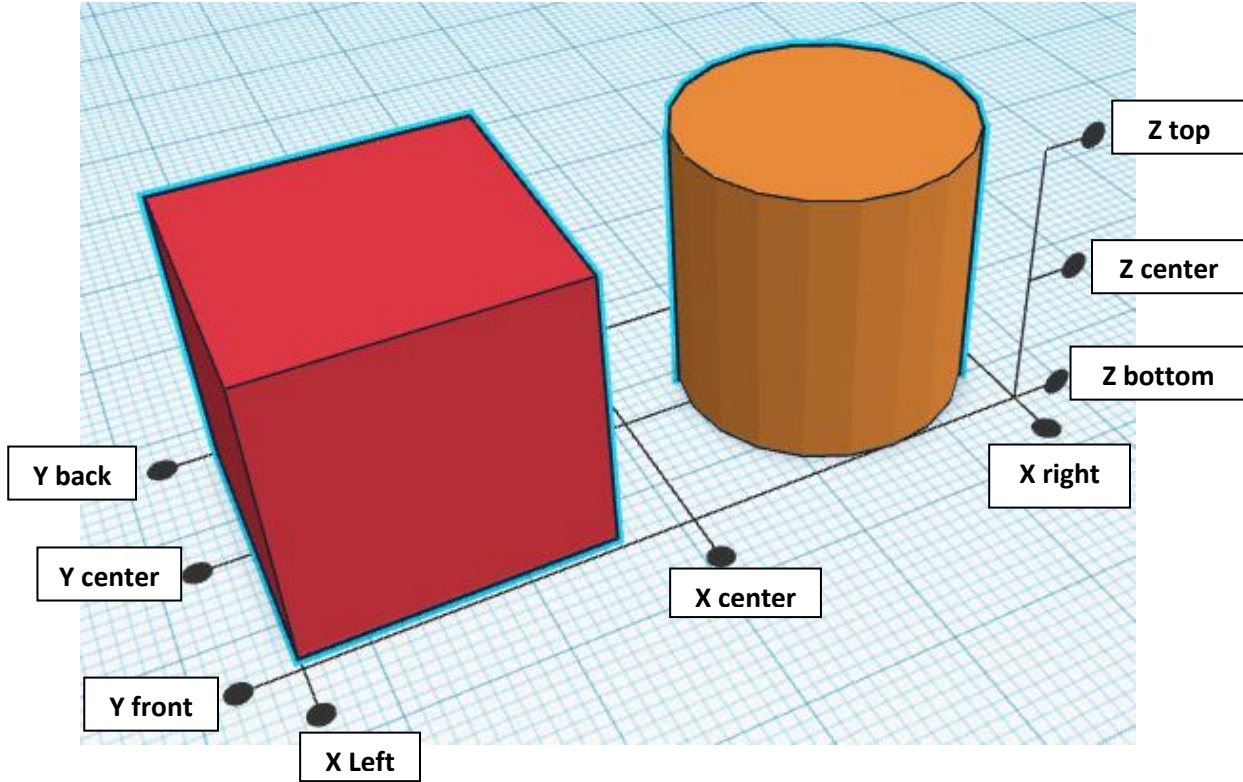
The end, I hope your mother enjoys her present from you!!

Reference to Aligning, Flip direction, Move direction, and Rotate direction.

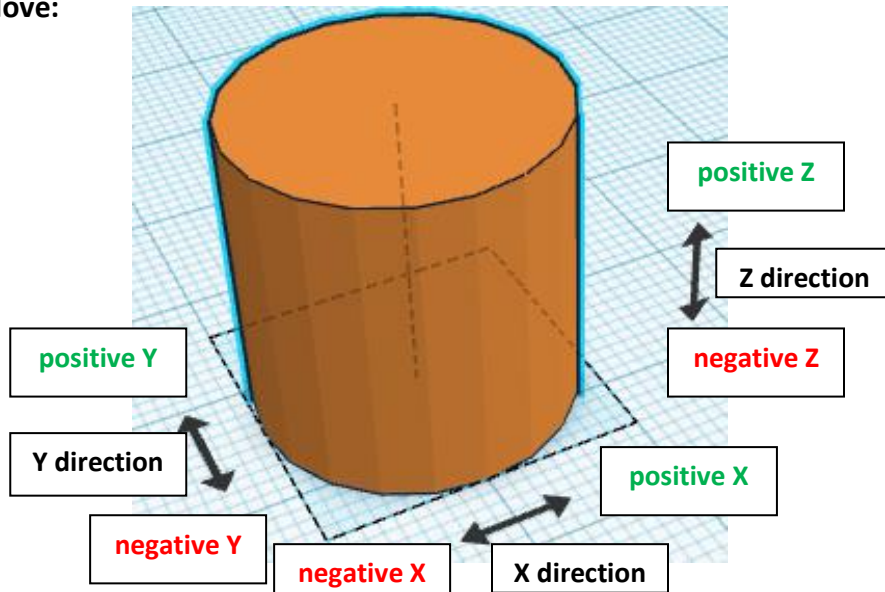
Always be in the "home view" when doing any of these!!!



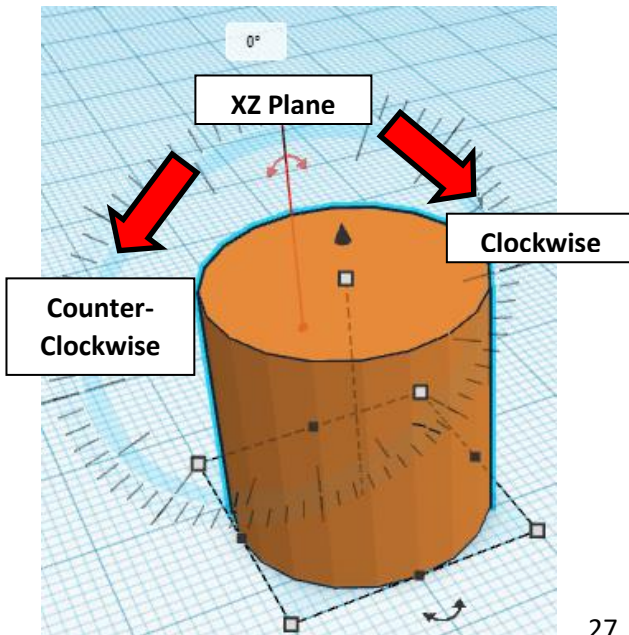
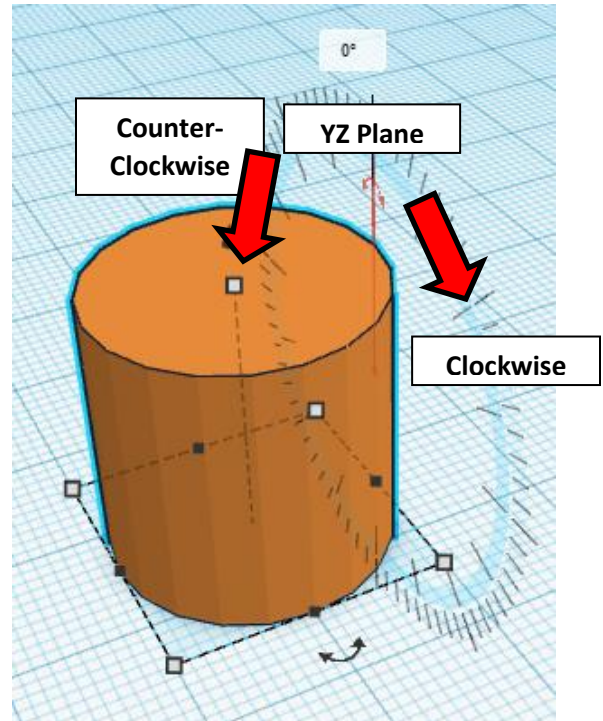
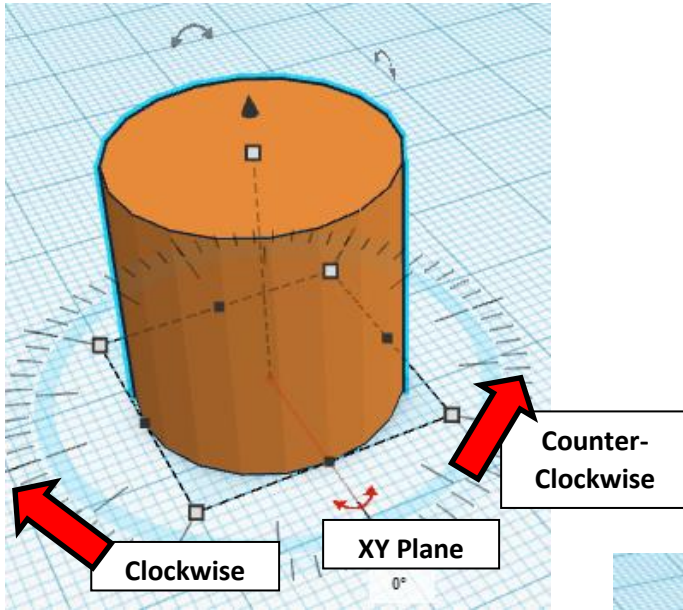
Aligning:



Flip or Mirror and Move:



Rotate:



Tool Guide

Most used Keyboard Shortcuts:

Transparency toggle	T	Duplicate object(s) in place.	Ctrl + D
Turn object(s) into Holes	H	Delete object(s)	Del
Turn object(s) into Solids	S	Undo action(s)	Ctrl + Z
Align object(s)	L	Zoom the view in or out	Mouse scroll wheel
Flip/Mirror object(s)	M	Zoom-in	+
Drop object(s) to workplane	D	Zoom-out	-
		Fit selected object(s) into view	F

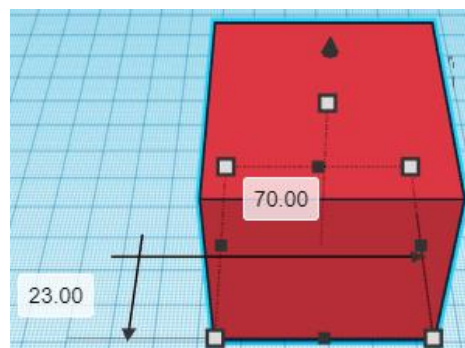
Moving Object(s):

To move object(s) with mouse:

In XY Plane
(left/right and forward/ backward)

Click and hold left mouse button on object.

Move mouse to desired location.

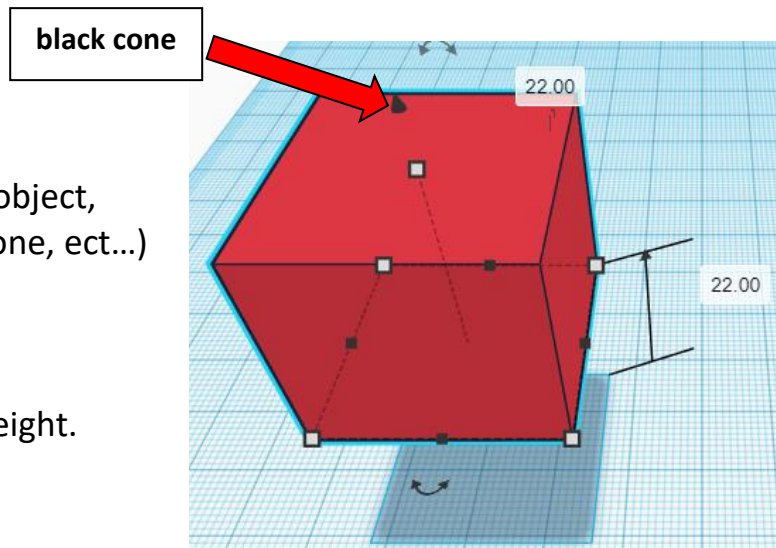


Moving Object(s) continued:

In Z direction (up/down)

Select object with left mouse button.
Notice that several shapes appear on object,
(white squares, black squares, black cone, ect...)

Click and hold left mouse button
on the black cone at top of object.
Move mouse up or down to desired height.



To move object(s) with keyboard:

In XY Plane (left/right and forward/ backward)

Select object with left mouse button.

Use arrow keys to move the object in 1mm increments.



In XY Plane (fast) (left/right and forward/ backward)

Select object with left mouse button.

Hold shift key
and use arrow keys to move the object in 10mm increments.



Moving Object(s) continued:

In Z direction (up/down)

Select object with left mouse button.



Hold control button
and use up and down arrow keys to move the object in 1mm increments.

In Z direction (fast) (up/down)

Select object with left mouse button.

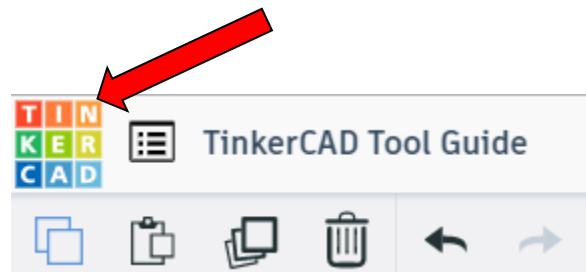


Hold control button and hold shift button
and use up and down arrow keys to move the object in 10mm increments.

Using on screen icons:

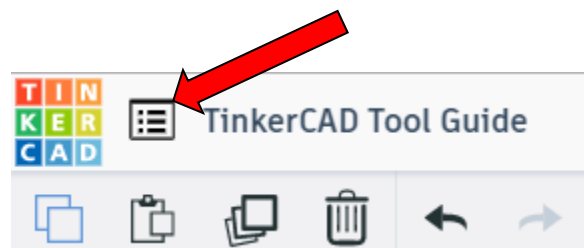
TinkerCAD main screen:

(I know this doesn't look
like an icon button, but it is)



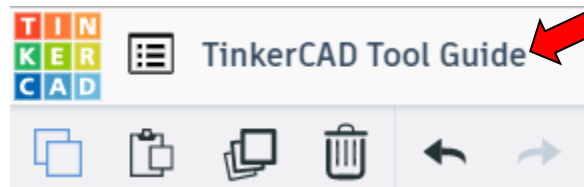
My designs:

Pulls up menu of your designs.



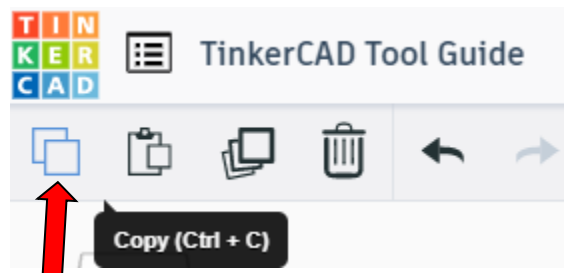
Design name:

TinkerCAD automatically names your design a random name.
Click here to change your design name.



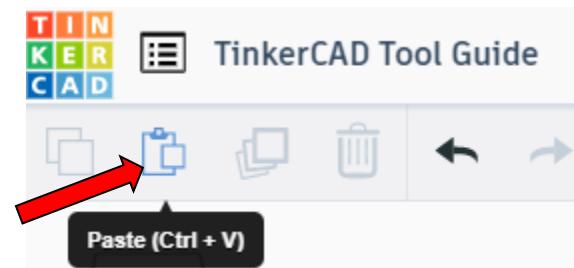
Copy:

Select shape.
Click copy or use ctrl + c
Paste to copy or go into new design and paste to copy.



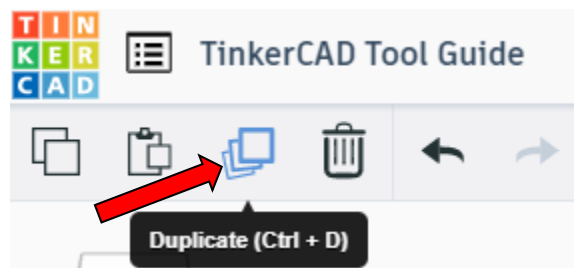
Paste:

After using copy,
click paste or use ctrl + v to paste.



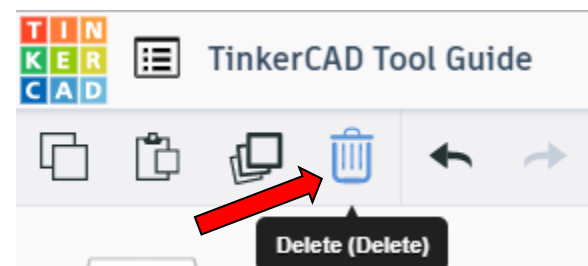
Duplicate:

Similar to copy, but can't copy to other designs.
Select shape.
Click duplicate or use ctrl + d
It will appear as if nothing happened, but if you move the shape you will see then duplicate underneath.



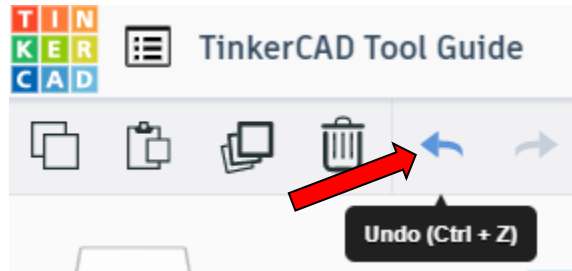
Delete:

Select shape.
Click delete or delete key.



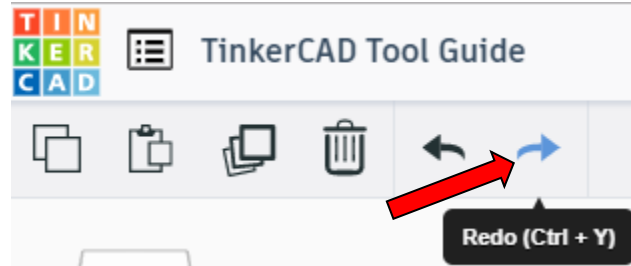
Undo:

Click undo or use ctrl + z
This will undo your last command.
This can be repeated.



Redo:

Click redo or use ctrl + y
This will redo your last undo command,
can only be used after using the
undo command.



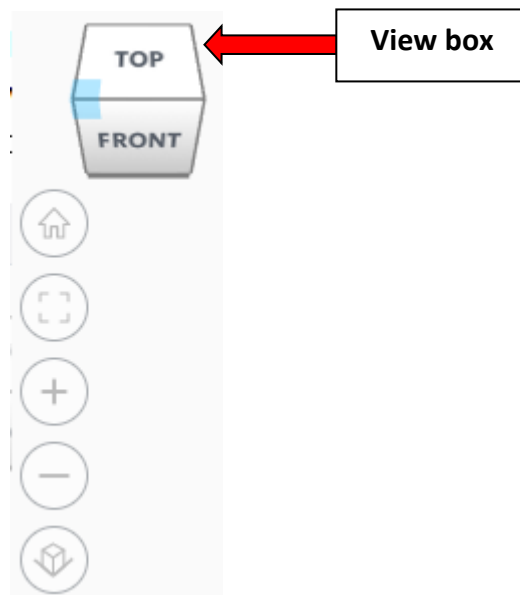
Change View:

To change view with mouse:

Right click and hold anywhere in work area. While holding right mouse button move mouse.
This will change the view of the work area.

To change view with icons:

Left click on view box.
Where you click determines
the view shown.

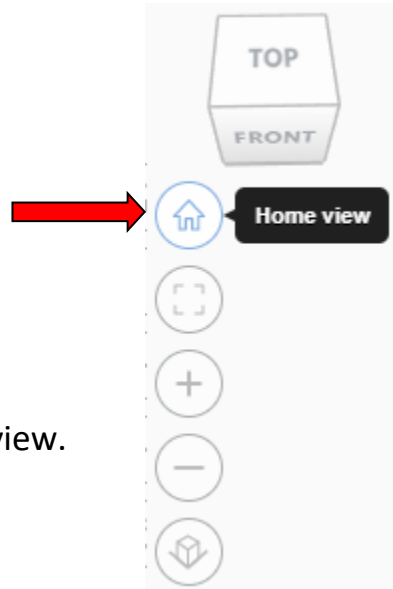


Change view to home view:

Most TinkerCAD Tutorials only work while in home view.

Click on home view icon to go to the home view.

You can also use the view box between the top and front view to change to the home view.



Fit all in view:

If you lose an object off the screen, you can click on Fit all in view to un-zoom to see all objects.

Fit one or more object(s) in view:

If you want to only see one or more object(s) in the view then select the object(s) and click Fit all in view or click the "f" key. This will zoom in on the object(s).



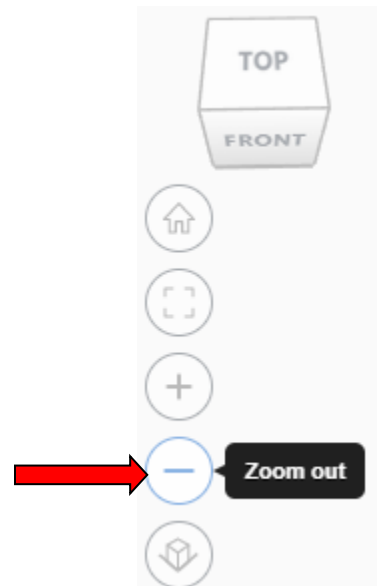
Zoom in:

Click the Zoom in icon or click the "+" key to zoom in.



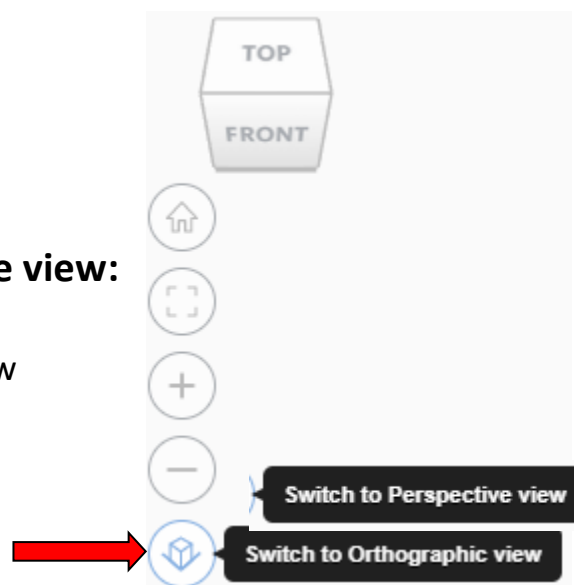
Zoom out:

Click the Zoom out icon or click the “-” key to zoom out.



Switching to orthographic and perspective view:

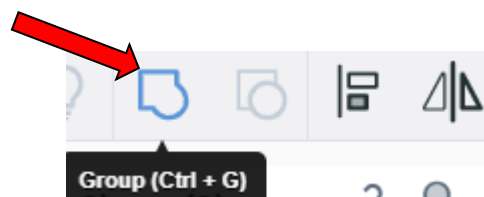
Click the Switch to orthographic/perspective view
To change to your preferred view.



Group:

To combine two or more objects into one object.

Select the objects to combine and click the
Group button or click ctrl + G



Ungroup:

After group objects, this will ungroup the object
back to separate objects.

Select the objects to ungroup and click the
ungroup button or click ctrl + shift + G



Align:

To perfectly center objects to each other or
To line up objects along their edges then use align.

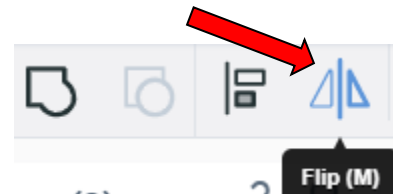
Select the objects to align and click the
align button or click "L"



Flip (Mirror):

This is mainly used for symmetric builds,
you create one half, duplicate it, then flip it
and move it in place and group it.

Select the objects to flip and click the
flip button or click "M"



Full list of Keyboard Shortcuts

MOVING OBJECT(S)

(Using keyboard)

Move along X/Y axis	← / ↑ / ↓ / →
Move along Z axis	Ctrl + ↓ / ↑
×10 Nudge along X/Y axis	Shift + ← / ↑ / ↓ / →
×10 Nudge along Z axis	Ctrl + Shift + ↓ / ↑

KEYBOARD + MOUSE SHORTCUTS

(Press and hold the keys, then click and drag the mouse)

Duplicate dragged object(s)	Alt + Drag left mouse button
Select multiple object(s)	Shift + Left mouse button
45° rotation	Shift (Hold while rotating)
Scale in one direction	Alt + Hold side handle
Scale in two directions	Alt + Hold corner handle
Uniform scale	Shift + Hold corner handle
Uniform scale in all directions	Alt + Shift + Corner handle
Uniform scale in all directions	Alt + Shift + Top handle

VIEWING DESIGNS

(With the help of a mouse or a mouse pad)

Orbit the view	Right mouse button
Orbit the view	Ctrl + Left mouse button
Pan the view	Shift + Right mouse button
Pan the view	Ctrl + Shift + left button
Zoom the view in or out	Mouse scroll wheel
Zoom-in	+
Zoom-out	-
Fit selected object(s) into view	F

OBJECT SETTINGS

Transparency toggle	T
Turn object(s) into Holes	H
Turn object(s) into Solids	S
Lock or Unlock object(s)	Ctrl + L
Hide object(s)	Ctrl + H
Show all hidden object(s)	Ctrl + Shift + H

TOOLS AND COMMANDS

Copy object(s)	Ctrl + C
Paste object(s)	Ctrl + V
Duplicate object(s) in place.	Ctrl + D
Delete object(s)	Del
Undo action(s)	Ctrl + Z
Redo action(s)	Ctrl + Y
Redo action(s)	Ctrl + Shift + Z
Group object(s)	Ctrl + G
Un-group object(s)	Ctrl + Shift + G
Align object(s)	L
Flip/Mirror object(s)	M
Select all object(s)	Ctrl + A
Place a Ruler	R (Shift toggle midpoint/center)
Place a Workplane	W (press Shift to flip direction)
Drop object(s) to workplane	D