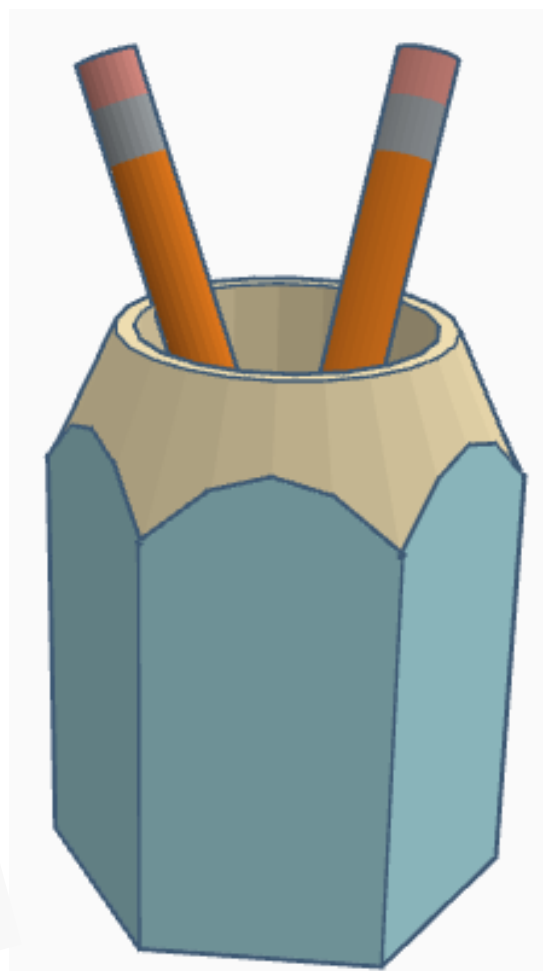


T I N  
K E R  
C A D

# Giant Pencil Pencil Holder



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## **Disclaimer:**

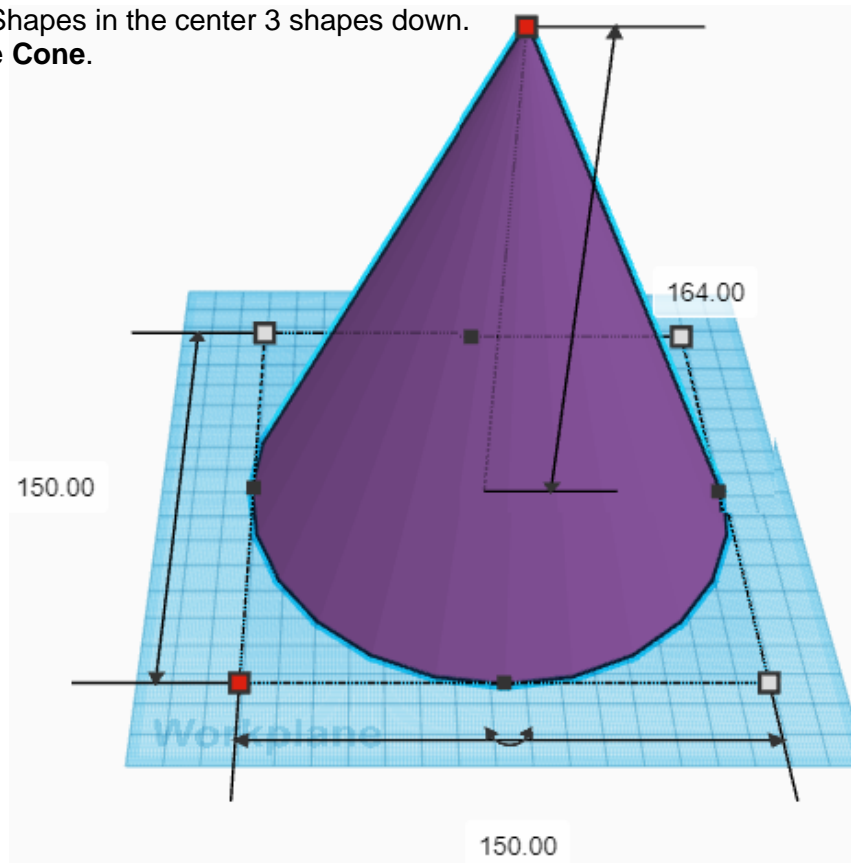
Locations of objects move on a regular basis in TinkerCAD. Although locations of objects are stated, that is the location at the time of publication. This publication has no association with TinkerCAD and does not control when TinkerCAD moves objects.

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.

**Cone:**

Bring in a Cone, located in Basic Shapes in the center 3 shapes down.  
From now on this will be called the **Cone**.

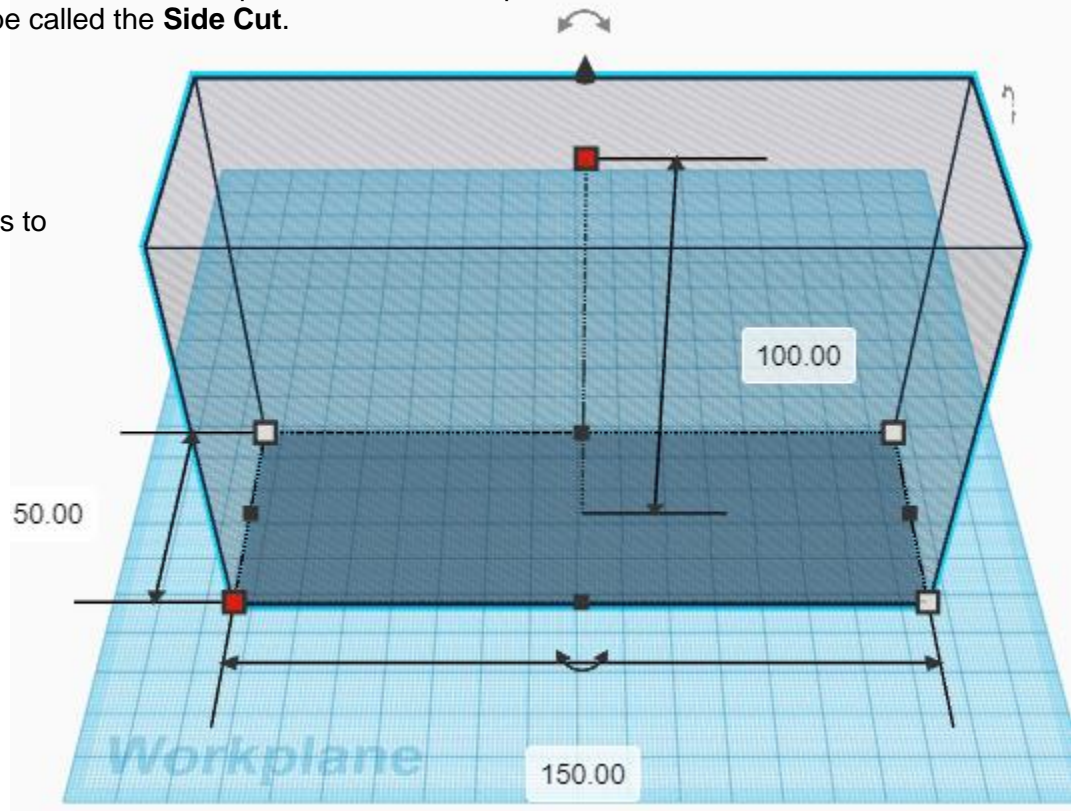
Change the dimensions to  
150mm X direction,  
150mm Y direction, and  
164mm Z direction.



**Side Cut:**

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

Change the dimensions to  
150mm X direction,  
50mm Y direction, and  
100mm Z direction.



**Duplicate** Side Cut 1 time

The duplicate Side Cut will be called **Side Cut Top**

**Move** Side Cut Top (Must be in home view for this to work!)

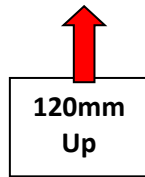
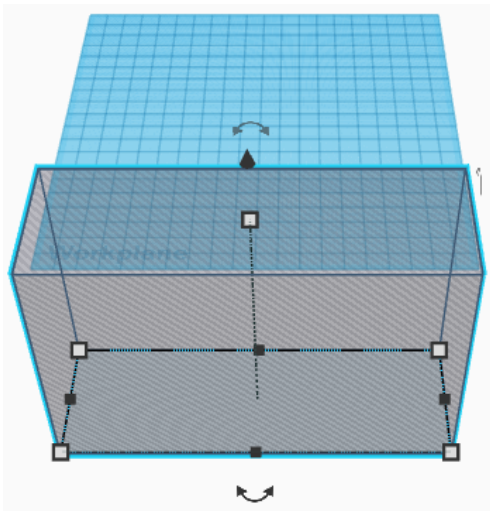
move back in positive Y direction 120mm

**Hint:** Select Side Cut Top and push up arrow key 120 times.

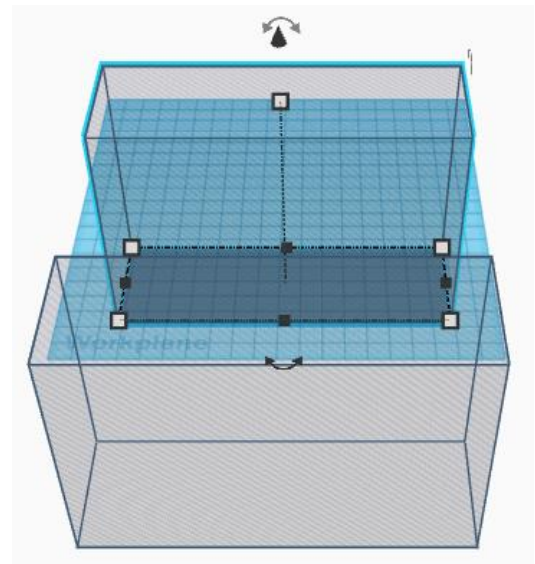
or

Select Side Cut Top and hold down shift and push up arrow key 12 times.

Before

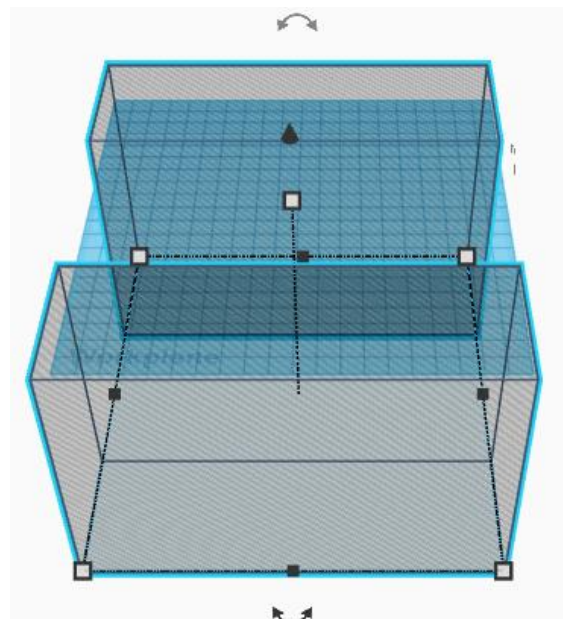


After



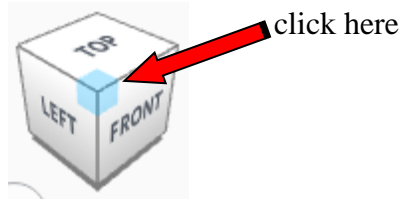
**Group** Side Cut and Side Cut Top

From now on this will be called the **Side Cuts**

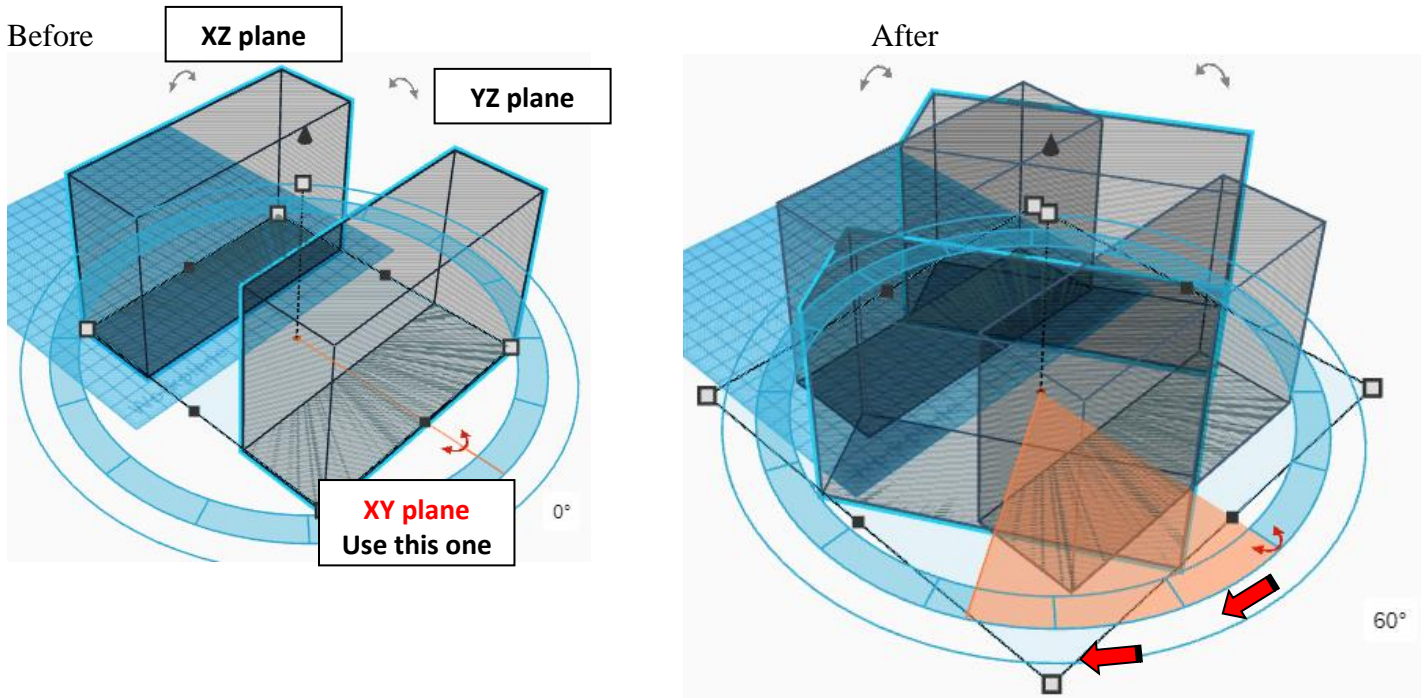


**Duplicate** Side Cuts 1 time  
The duplicate Side Cut will be called **Side Cut Rotate**

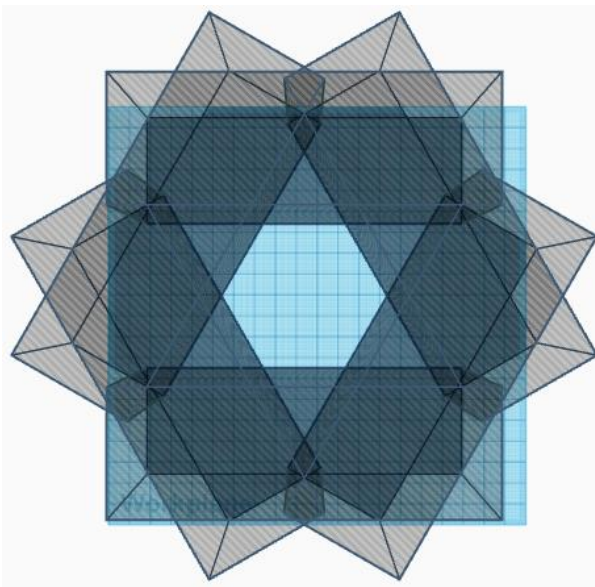
Go to TOP LEFT FRONT view for rotations



**Rotate** the Side Cut Rotate clockwise 60 degrees in XY plane.



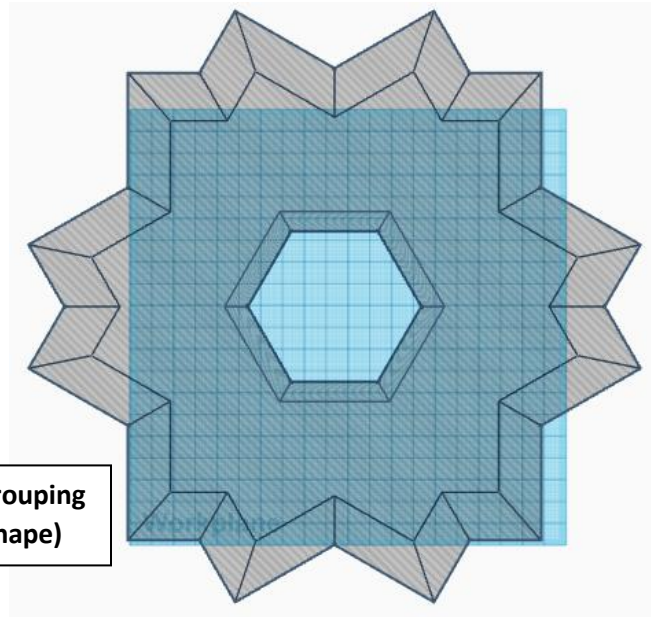
**Immediately Duplicate** 1 more times by holding Ctrl and pushing D  
As long as there was no other action, the Side Cut Rotate will duplicate and rotate 60 degrees.



**Top view after the two copy and rotates**



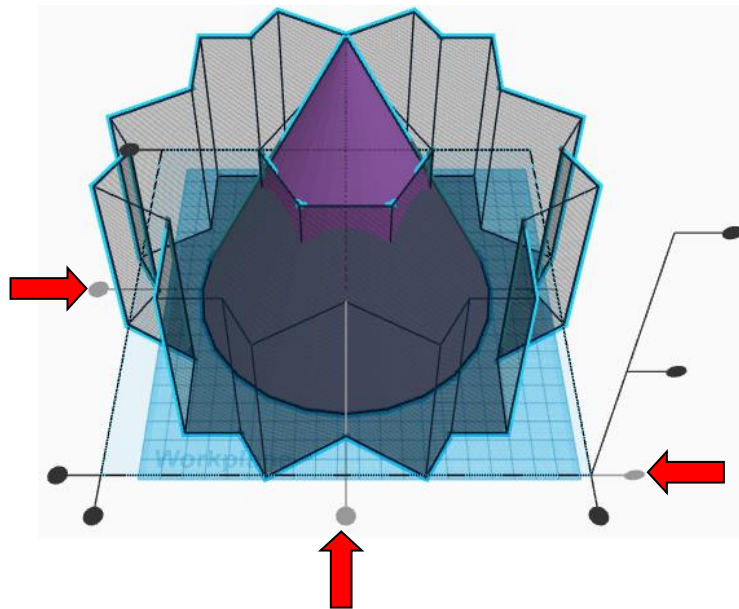
**Group Side Cuts and Side Cut Rotates**  
From now on this will be called the **Side Cuts**



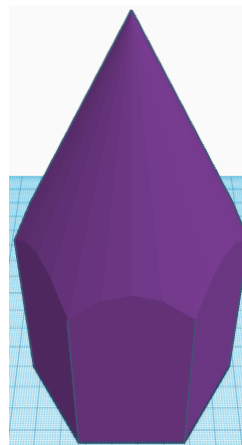
Top view after grouping  
(cool looking shape)

**Align Cone and Side Cuts**

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



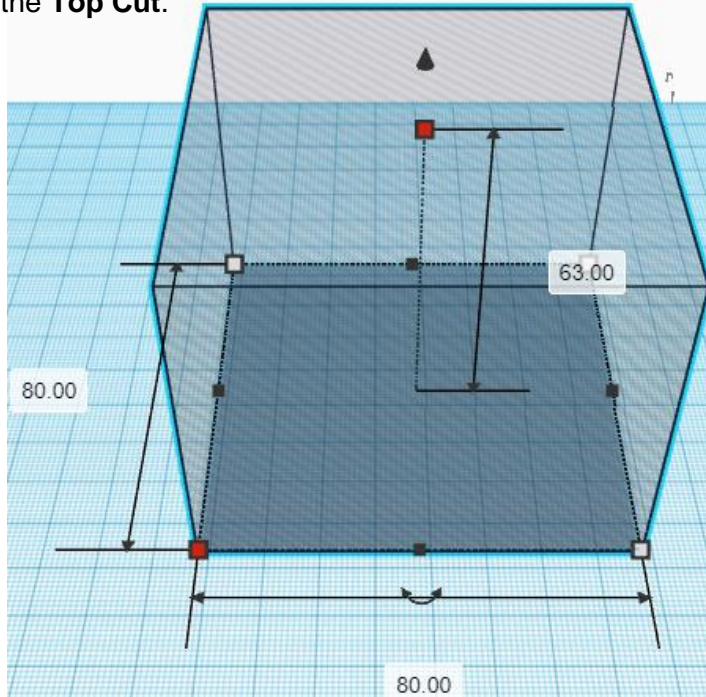
**Group Cone and Side Cuts**  
From now on this will be called the **Pencil**



**Top Cut:**

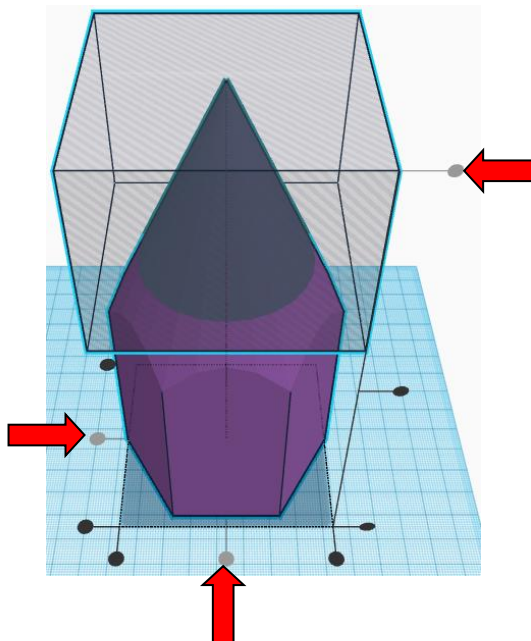
Bring in a Hole Box, located in Basic Shapes on the left 1 shape down.  
From now on this will be called the **Top Cut**.

Change the dimensions to  
80mm X direction,  
80mm Y direction, and  
63mm Z direction.



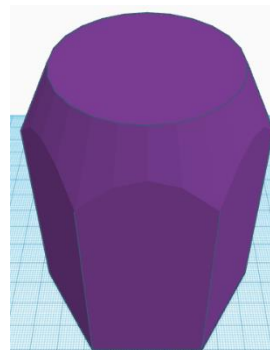
**Align Pencil and Top Cut**

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



**Group Pencil and Top Cut**

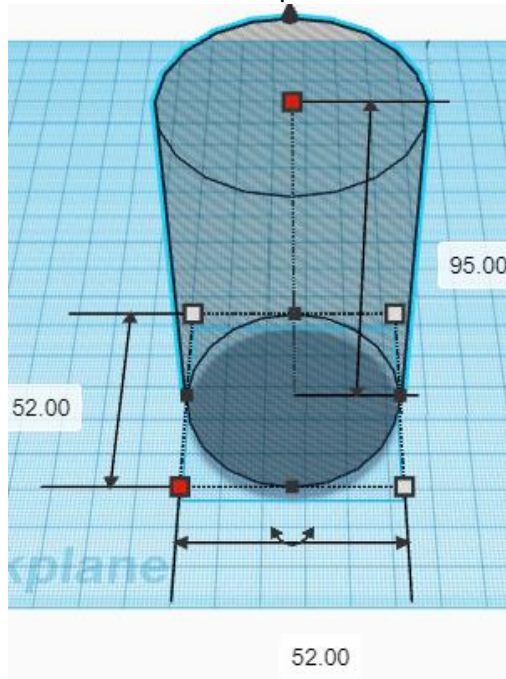
From now on this will be called the **Pencil**



**Inside Cut:**

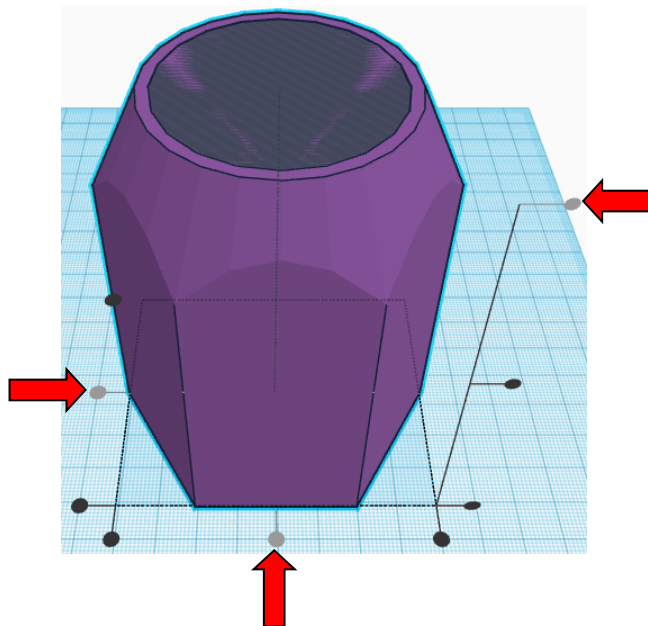
Bring in a Hole Cylinder, located in Basic Shapes in the middle 1 shape down.  
From now on this will be called the **Inside Cut**.

Change the dimensions to  
52mm X direction,  
52mm Y direction, and  
95mm Z direction.



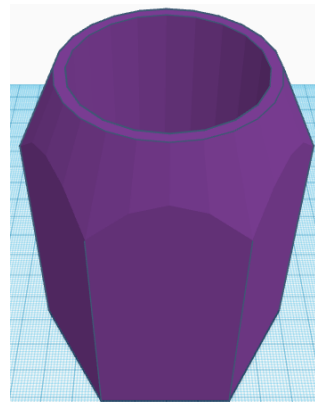
**Align Pencil and Inside Cut**

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



**Group Pencil and Inside Cut**

From now on this will be called the **Pencil**



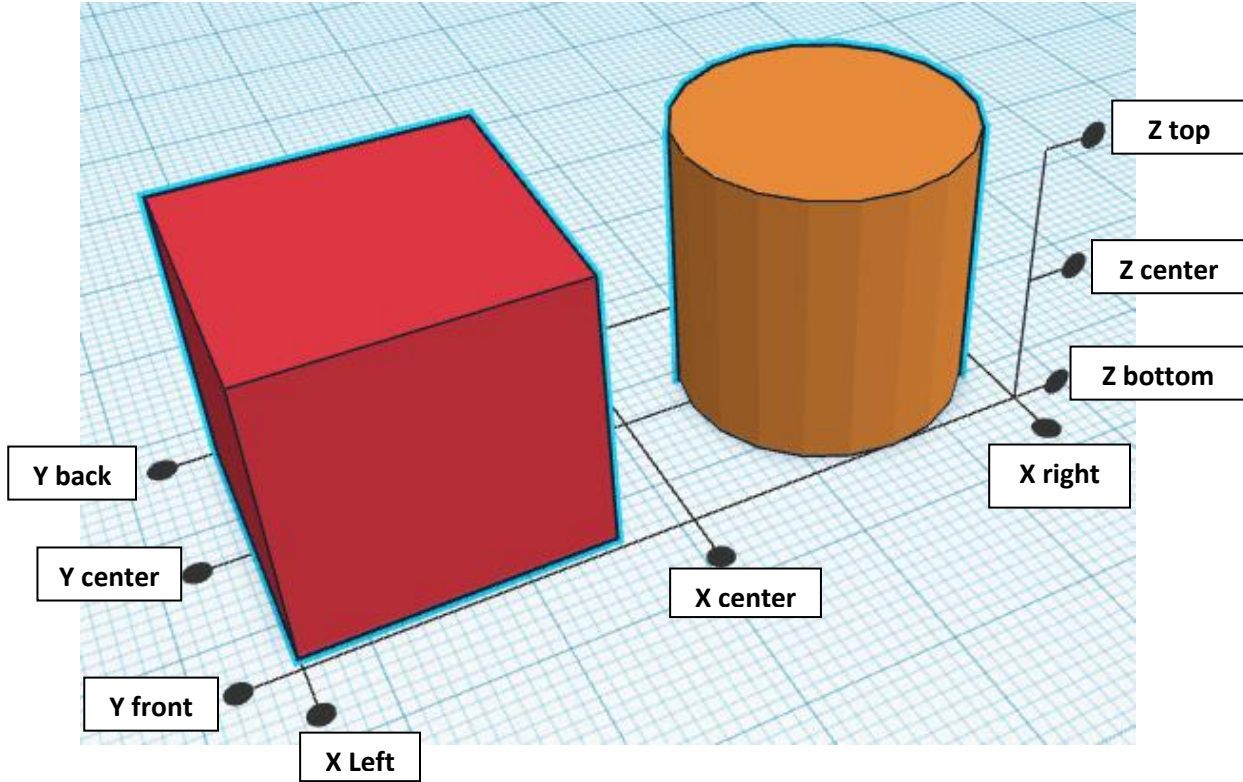


Reference to Aligning, Flip direction, Move direction, and Rotate direction.

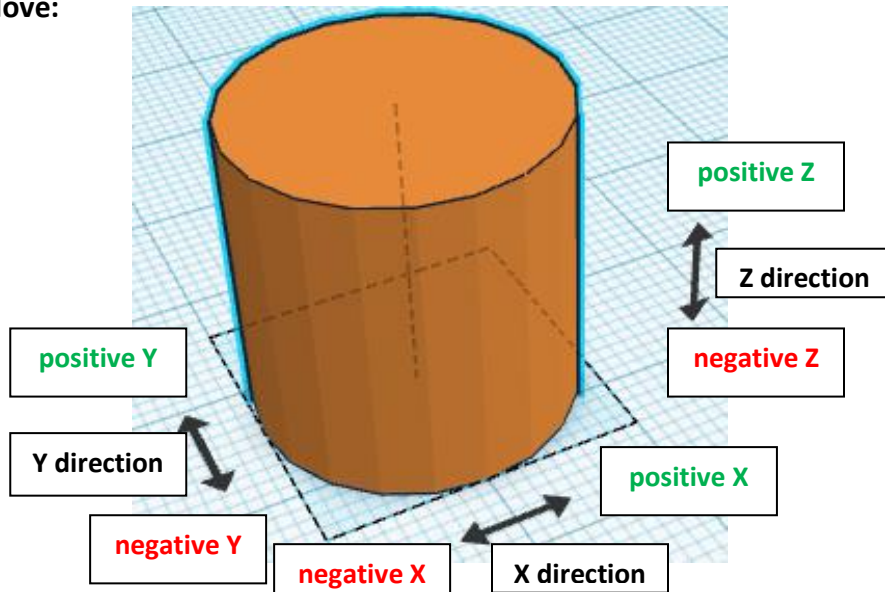
Always be in the "home view" when doing any of these!!!



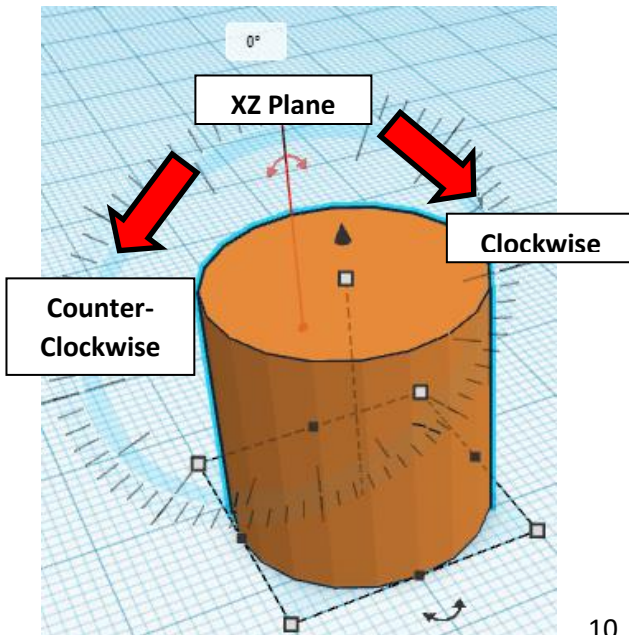
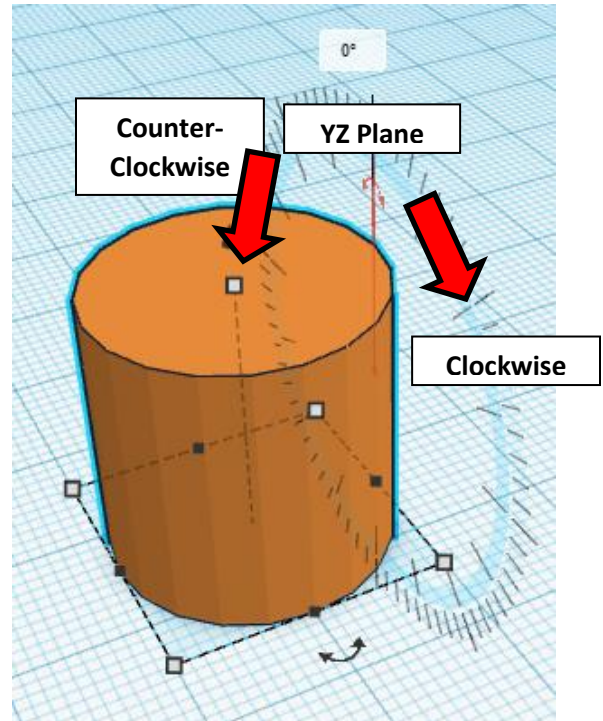
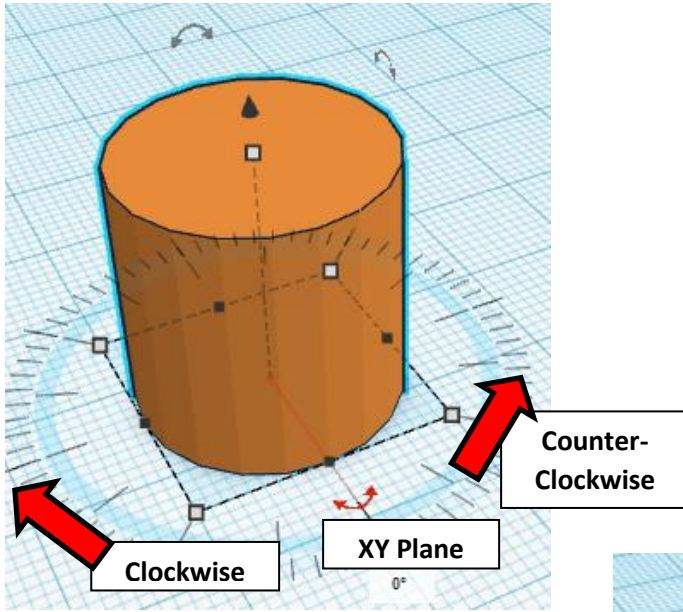
Aligning:



Flip or Mirror and Move:



Rotate:



# Tool Guide

## Most used Keyboard Shortcuts:

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

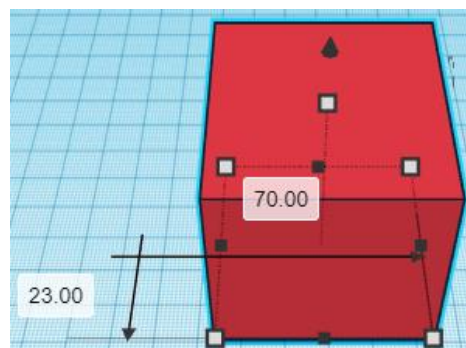
## Moving Object(s):

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.

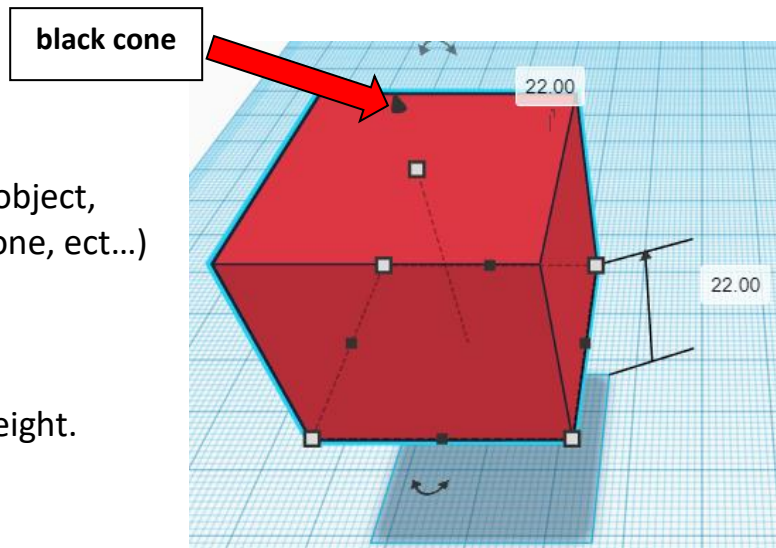


## Moving Object(s) continued:

### 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.

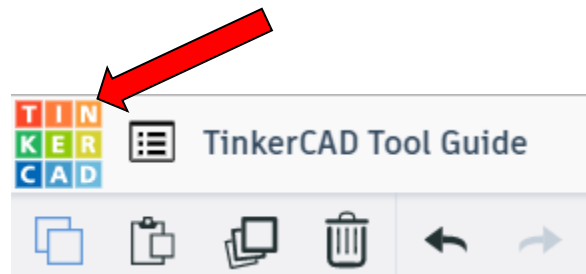


Hold control button and hold shift button  
and use up and down arrow keys to move the object in 10mm increments.

## Using on screen icons:

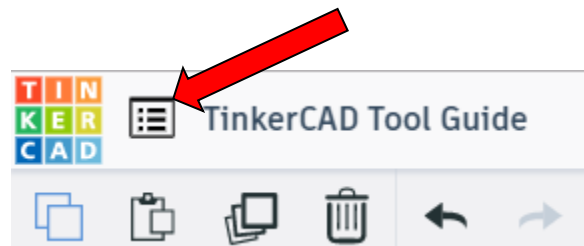
### TinkerCAD main screen:

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



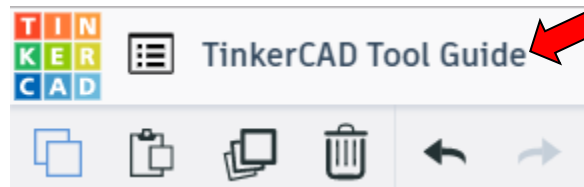
### My designs:

Pulls up menu of your designs.



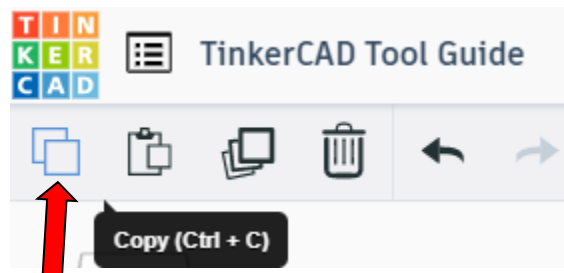
## Design name:

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



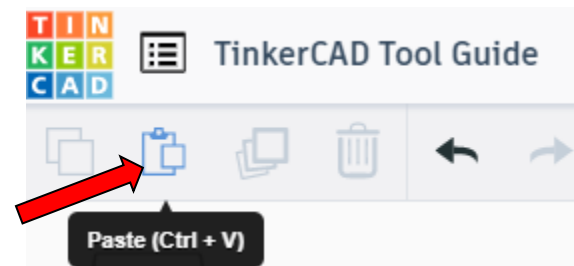
## Copy:

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



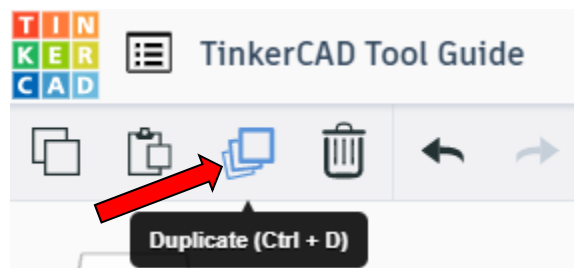
## Paste:

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



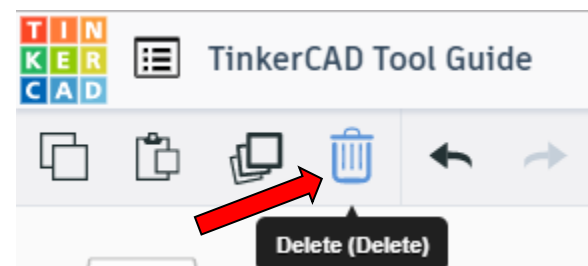
## Duplicate:

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.



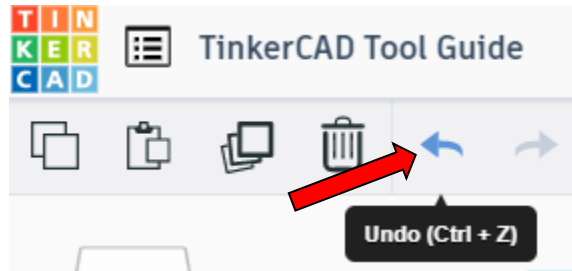
## Delete:

Select shape.  
Click delete or delete key.



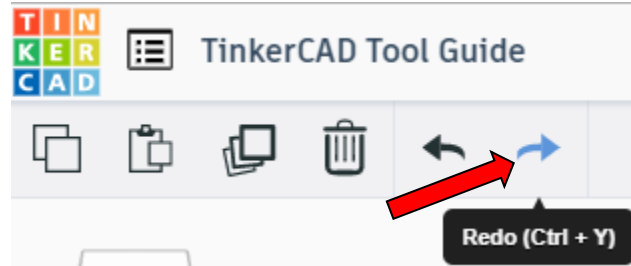
## Undo:

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.



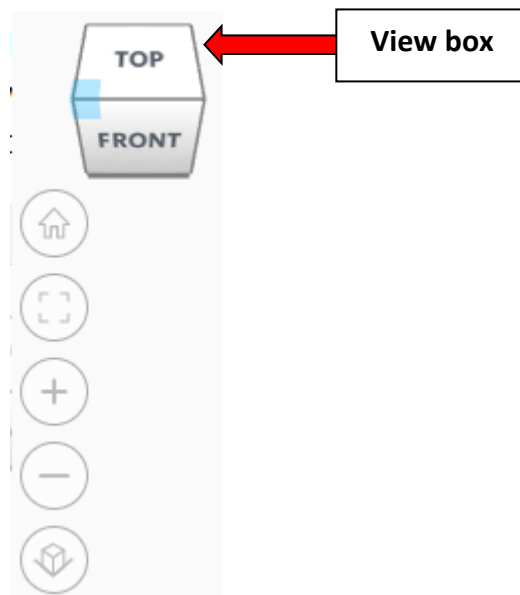
## Change View:

### 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.

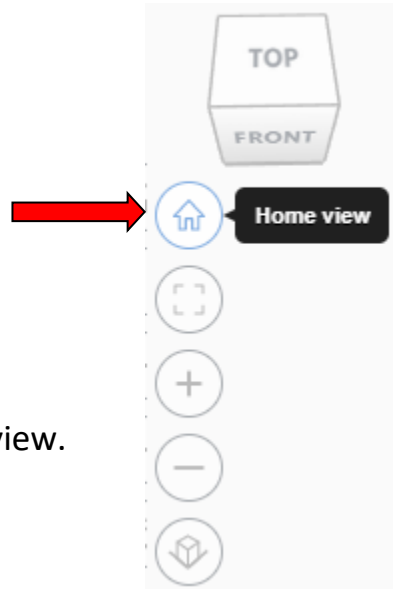


## Change view to home view:

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:

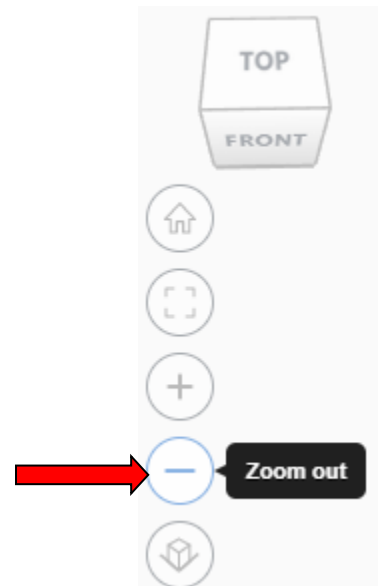
Click the Zoom in icon or click the "+" key to zoom in.





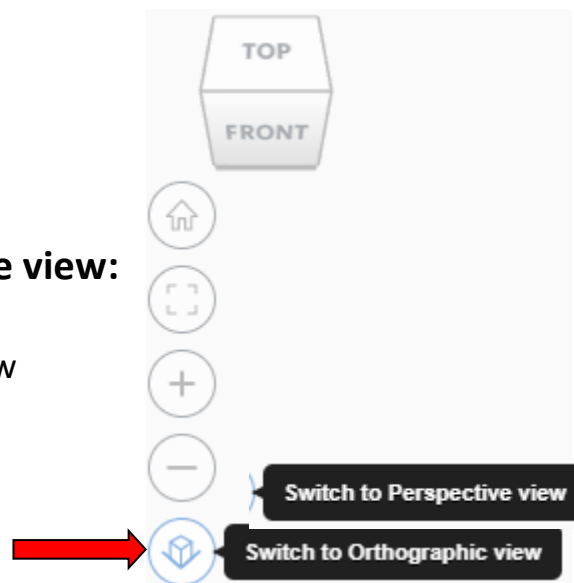
## Zoom out:

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



## Switching to orthographic and perspective view:

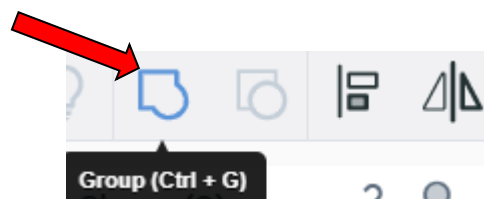
Click the Switch to orthographic/perspective view  
To change to your preferred view.



## 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.

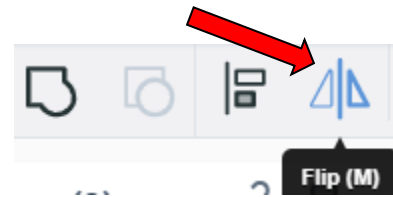
Select the objects to align and click the  
align button or click "L"



## 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)

<b>Duplicate</b> dragged object(s)	Alt + Drag left mouse button
<b>Select</b> 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

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

## TOOLS AND COMMANDS

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