Thug Life Sunglasses

Contents:
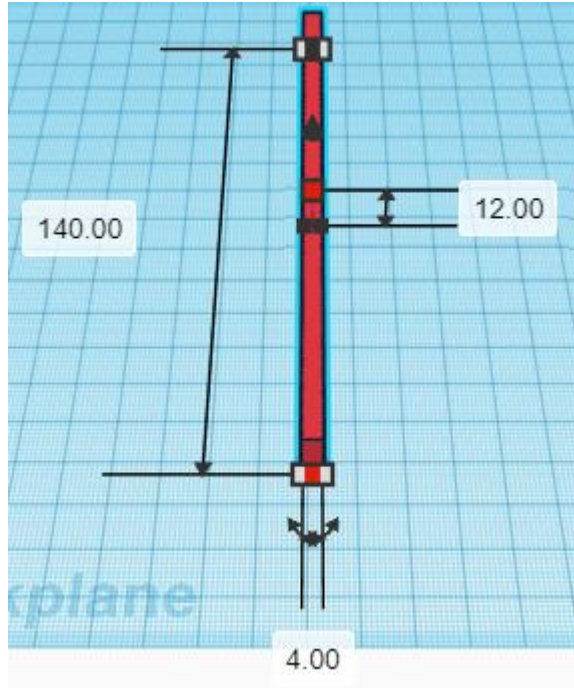
Sunglasses Arm:

Arm:
Bring in a Box, located in Basic Shapes on the left 2 shapes down.
From now on this will be called the **Arm.**

Change the dimensions to
4mm X direction,
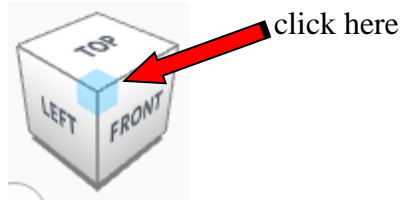140mm Y direction, and
12mm Z direction.

Bring in a Cylinder (Cutout), located in Basic Shapes on the right 1 shape down.
From now on this will be called the **Arm Cutout.**

Change the dimensions to
70mm X direction,
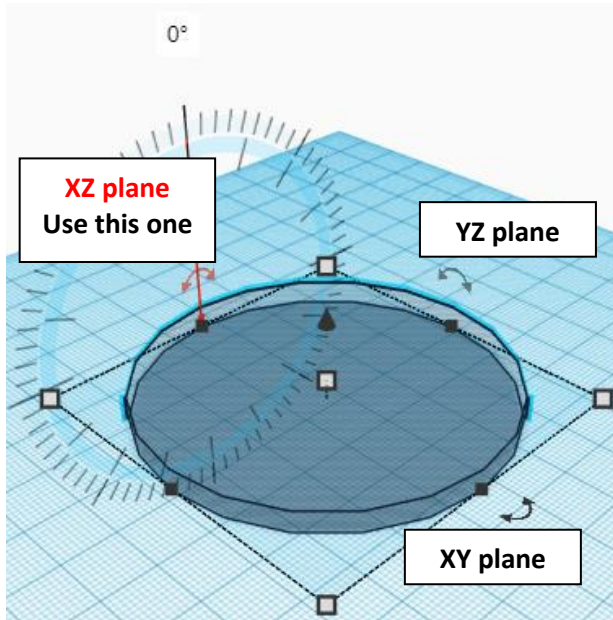70mm Y direction, and
4mm Z direction.
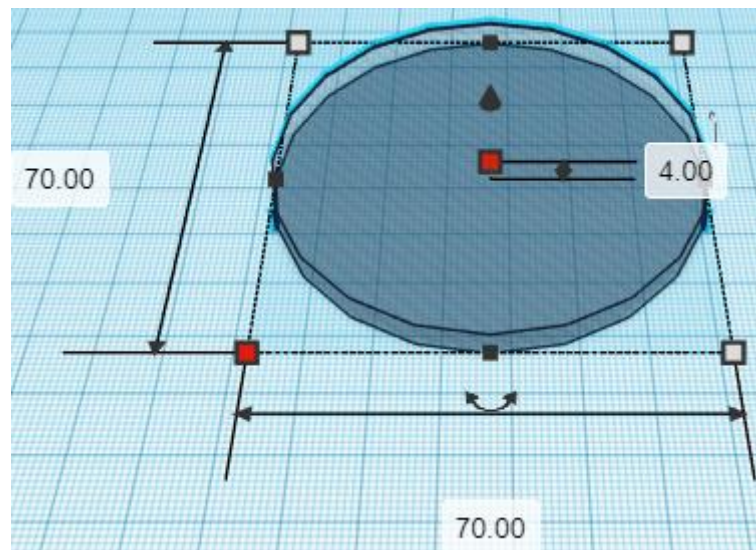
Go to TOP LEFT FRONT view for rotations click here

Rotate the Arm Cutout counter-clockwise 90 degrees in XZ plane.

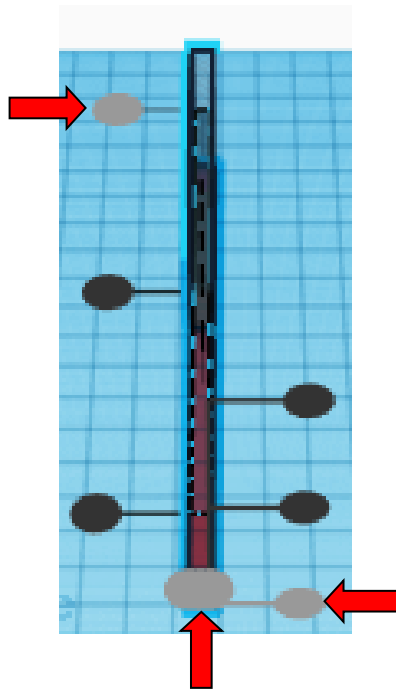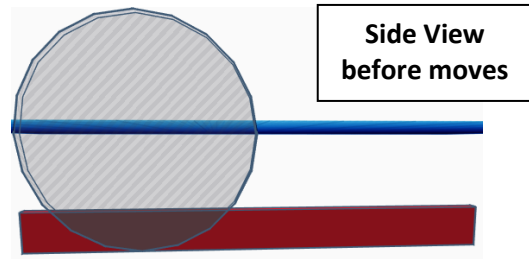Before   After

0°

**XZ plane
Use this one**

YZ plane

XY plane

90
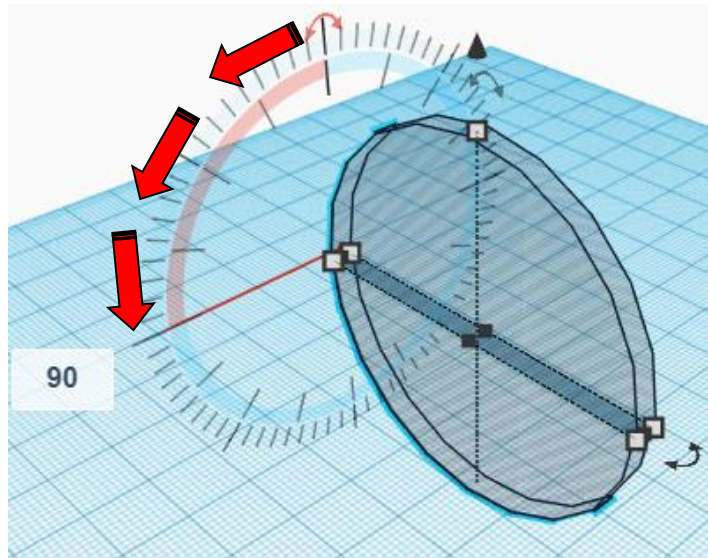
Align Arm and Arm Cutout

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

Side View before moves

Move <u>Arm</u>   (Must be in home view for this to work!)
move forward in negative Y direction 5mm

Hint: Select <u>Arm</u> and push down arrow key 5 times.

Before

5mm forward

After

Move <u>Arm</u>   (Must be in home view for this to work!)
move down in negative Z direction 3mm

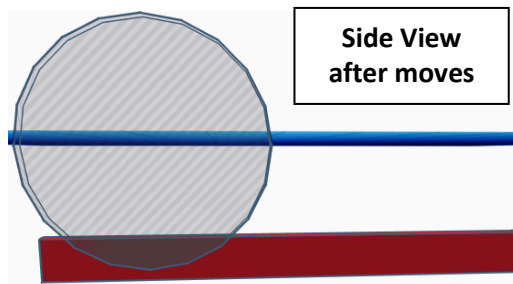**Hint:** Select <u>Arm</u> and hold control and push down arrow key 3 times.

Before

3mm Down (hold control)

Side View after moves

After

Group Arm and Arm Cutout
From now on this will be called the **Arm**
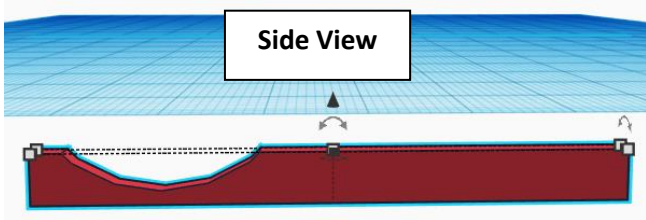

Side View

Set on Workplane:

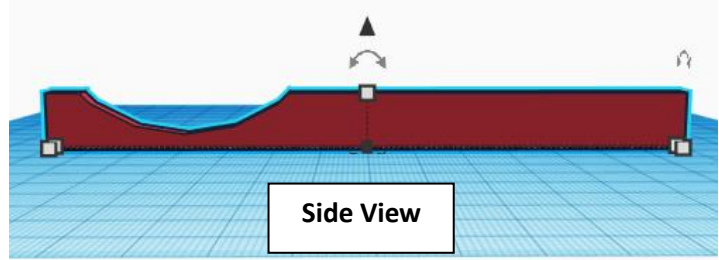Select the Arm and type "d" to set the body on the work plane.

Before   After
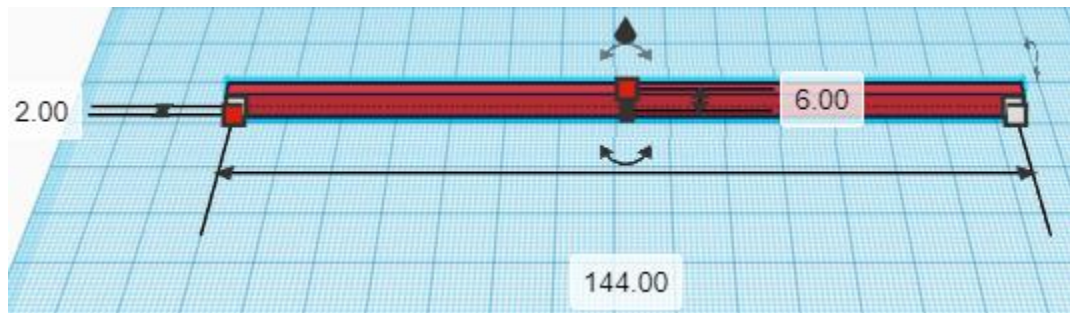

Side View

Side View

Sunglasses Glassframe:

Glassframe:
Bring in a Box, located in Basic Shapes on the left 2 shapes down.
From now on this will be called the **Glassframe 1.**

Change the dimensions to
144mm X direction,
2mm Y direction, and
6mm Z direction.

2.00

6.00

144.00

Align Arm and Glassframe 1

left in X direction,
front of Y direction, and
bottom of Z direction.

Group Arm and Glassframe 1
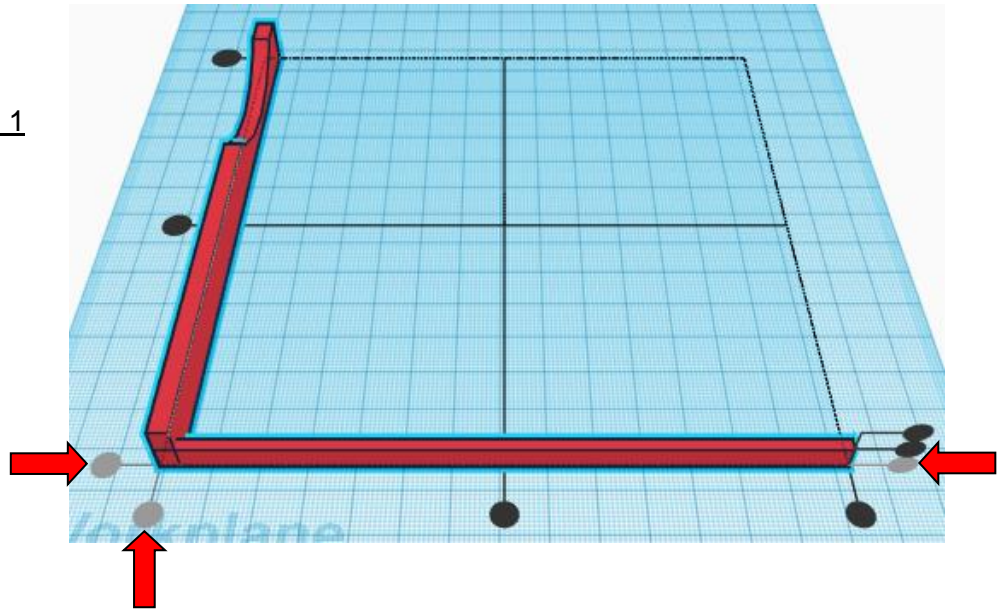From now on this will be called the **Frame**

Bring in a Box, located in Basic Shapes on the left 2 shapes down.
From now on this will be called the **Glassframe 2.**

Change the dimensions to
66mm X direction,
2mm Y direction, and
12mm Z direction.

Align Frame and Glassframe 2

left in X direction,
front of Y direction, and
bottom of Z direction.

Group Frame and Glassframe 2
From now on this will be called the **Frame**

Bring in a Box, located in Basic Shapes on the left 2 shapes down.
From now on this will be called the **Glassframe 3.**

Change the dimensions to
60mm X direction,
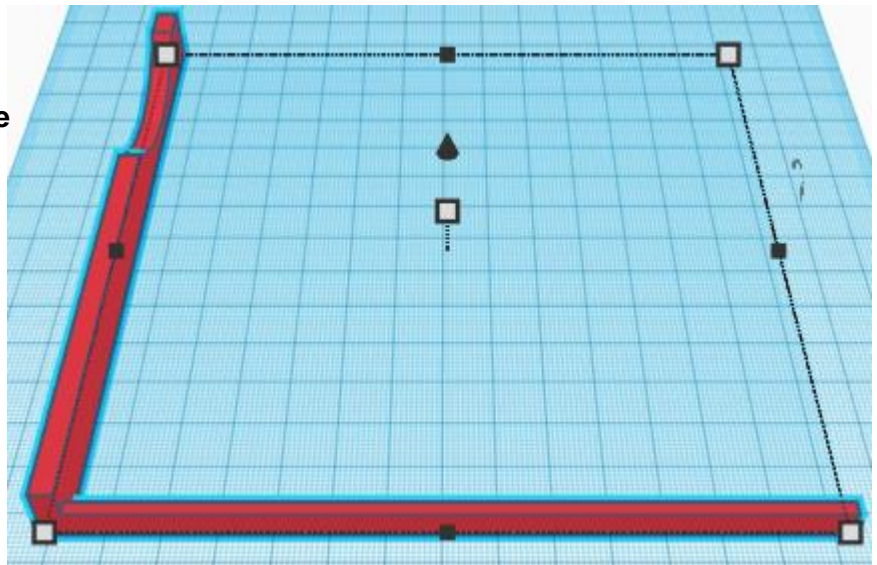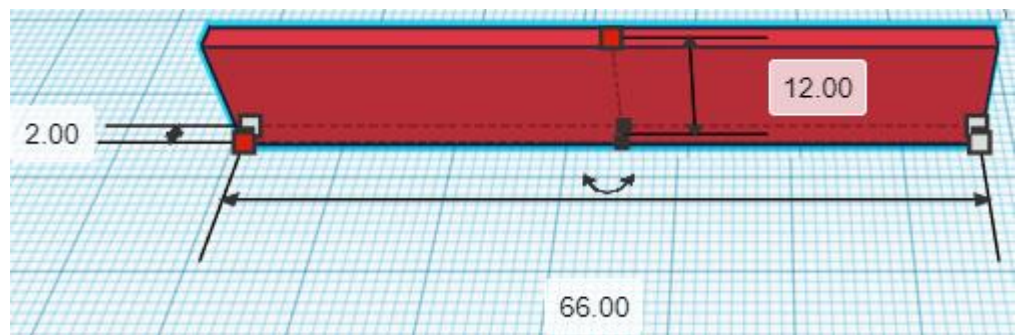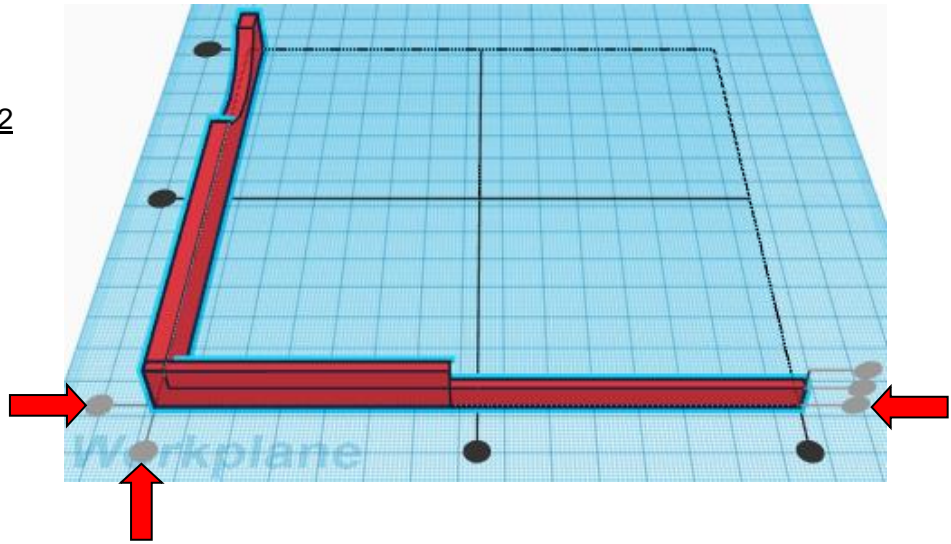2mm Y direction, and
18mm Z direction.

Align Frame and Glassframe 3

left in X direction,
front of Y direction, and
bottom of Z direction.

Move Frame   (Must be in home view for this to work!)
move left in negative X direction 6mm

Hint: Select Frame and push left arrow key 6 times.

Before

After

**6mm
left**

Group Frame and Glassframe 3
From now on this will be called the **Frame**

Bring in a Box, located in Basic Shapes on the left 2 shapes down.
From now on this will be called the **Glassframe 4.**

Change the dimensions to
48mm X direction,
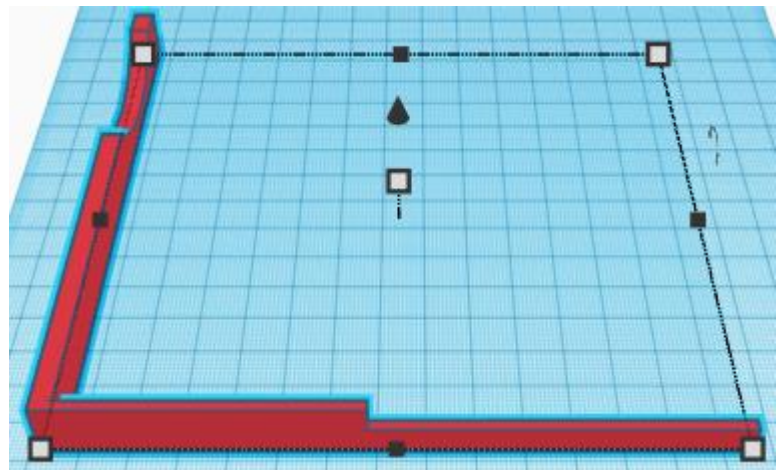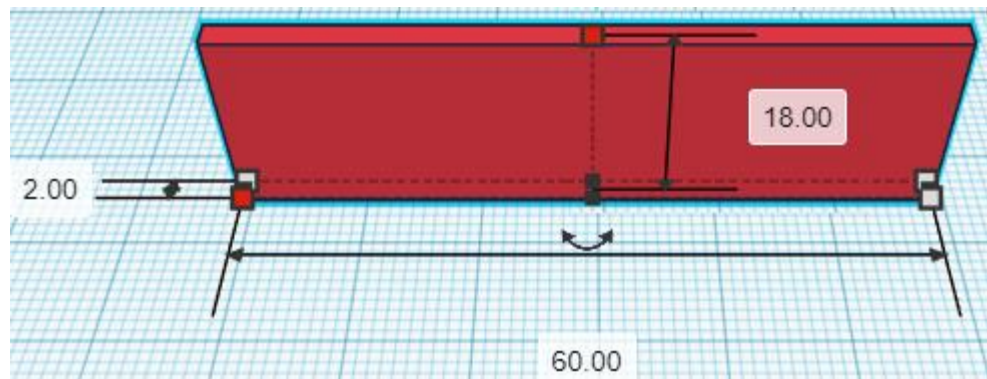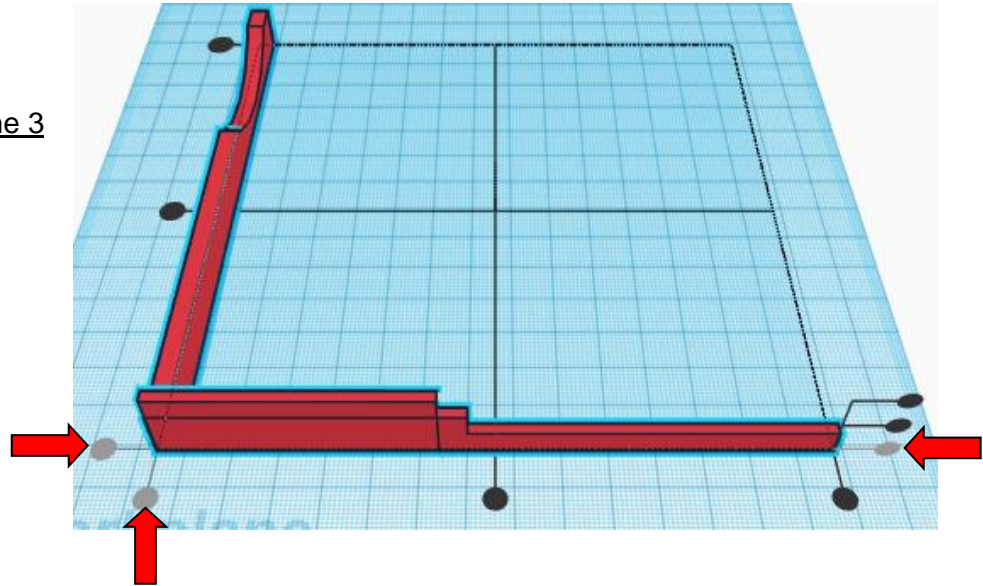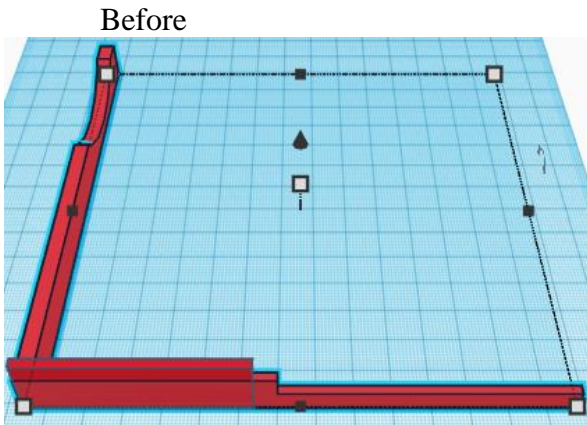2mm Y direction, and
24mm Z direction.

Align Frame and Glassframe 4

left in X direction,
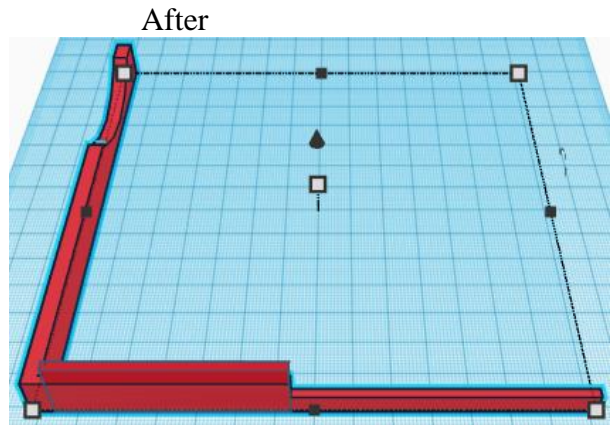front of Y direction, and
bottom of Z direction.

Move Frame   (Must be in home view for this to work!)
move left in negative X direction 12mm

Hint: Select Frame and push left arrow key 12 times.
Or
Select Frame and hold shift and push left arrow key 1 times,
Then release shift and push left arrow key 2 times.

Before   After

12mm
left

Group Frame and Glassframe 4
From now on this will be called the **Frame**

Bring in a Box, located in Basic Shapes on the left 2 shapes down.
From now on this will be called the **Glassframe 5.**

Change the dimensions to
35mm X direction,
2mm Y direction, and
30mm Z direction.

2.00

30.00

36.00

Align Frame and Glassframe 5

left in X direction,
front of Y direction, and
bottom of Z direction.
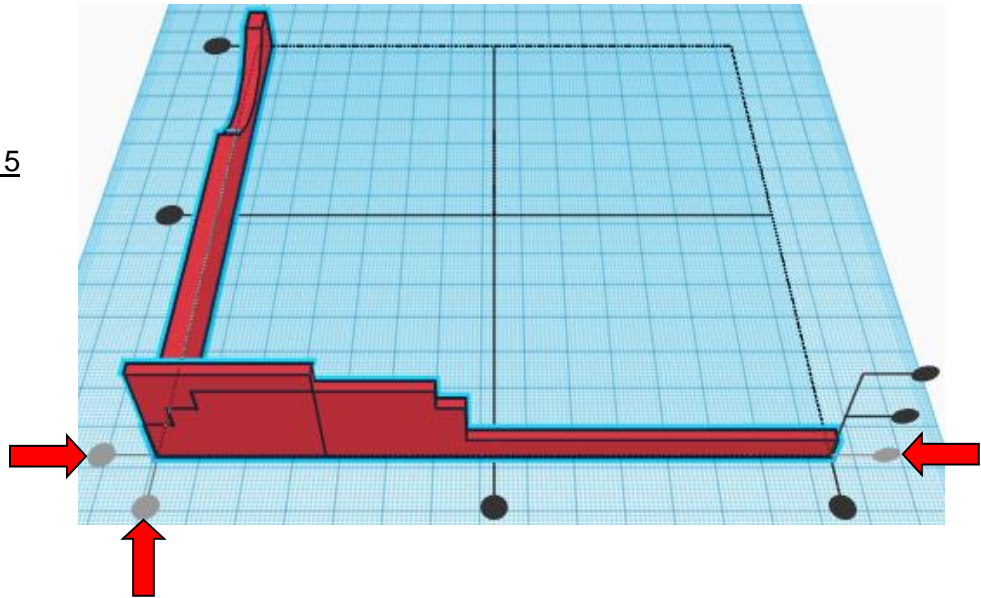
Move Frame   (Must be in home view for this to work!)
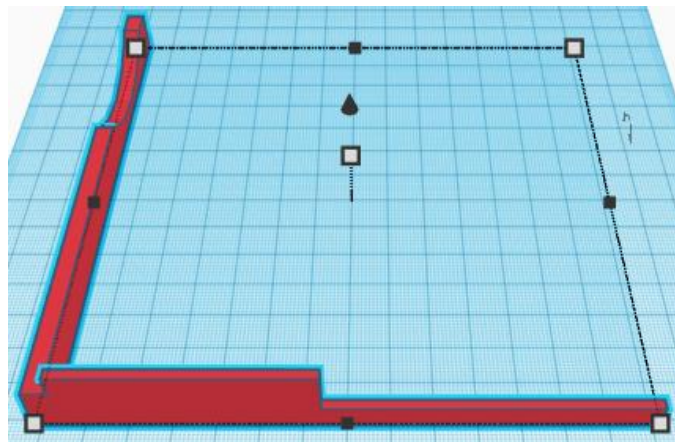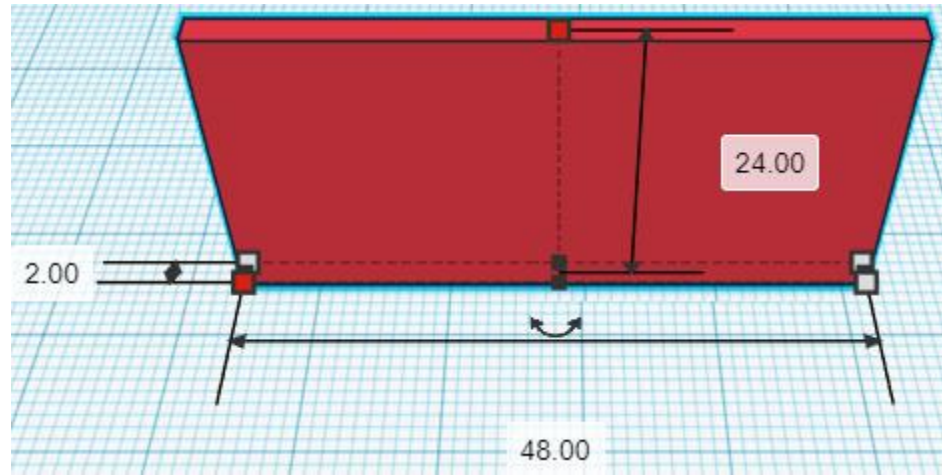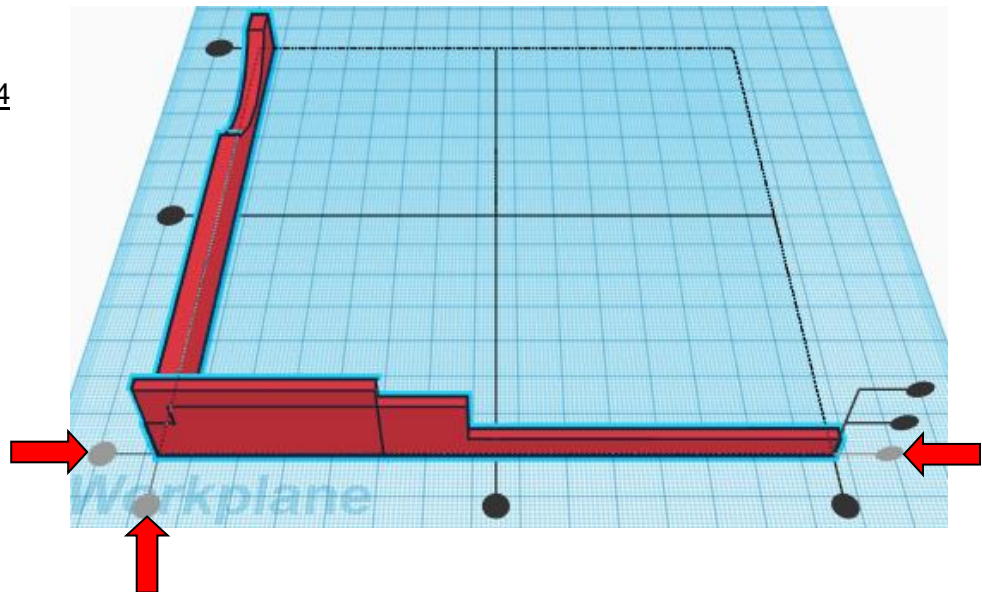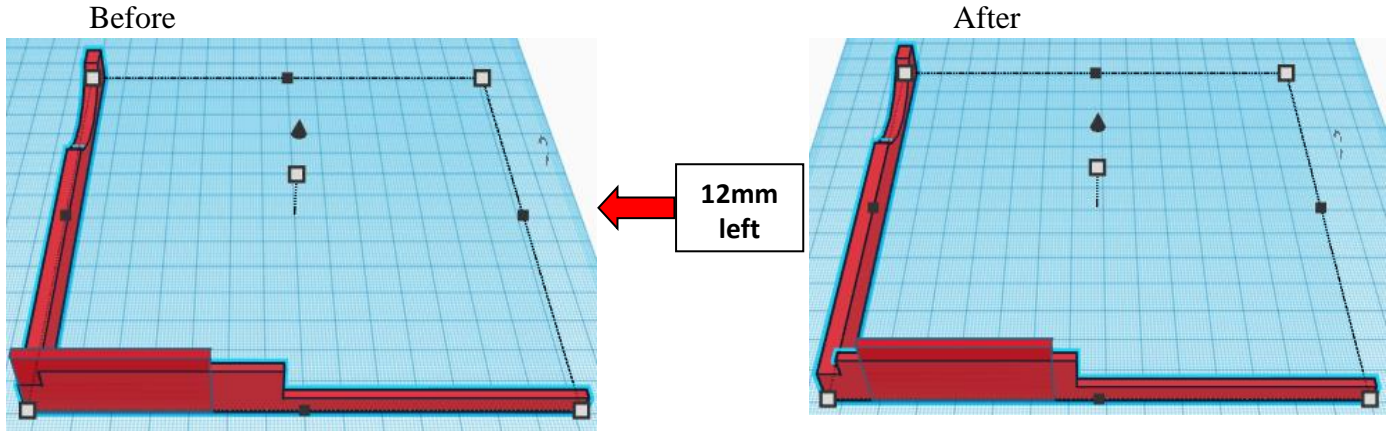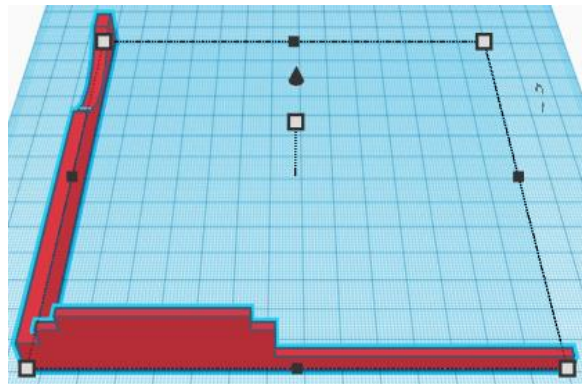move left in negative X direction 18mm

Hint: Select Frame and push left arrow key 18 times.
     Or
     Select Frame and hold shift and push left arrow key 1 times,
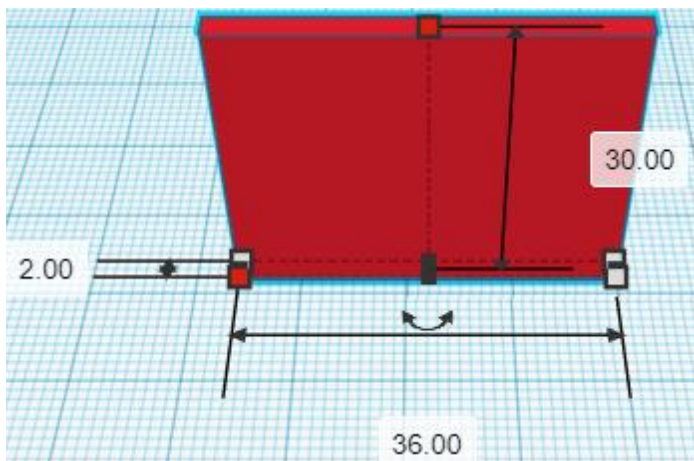   Then release shift and push left arrow key 8 times.

Before

After

18mm
left
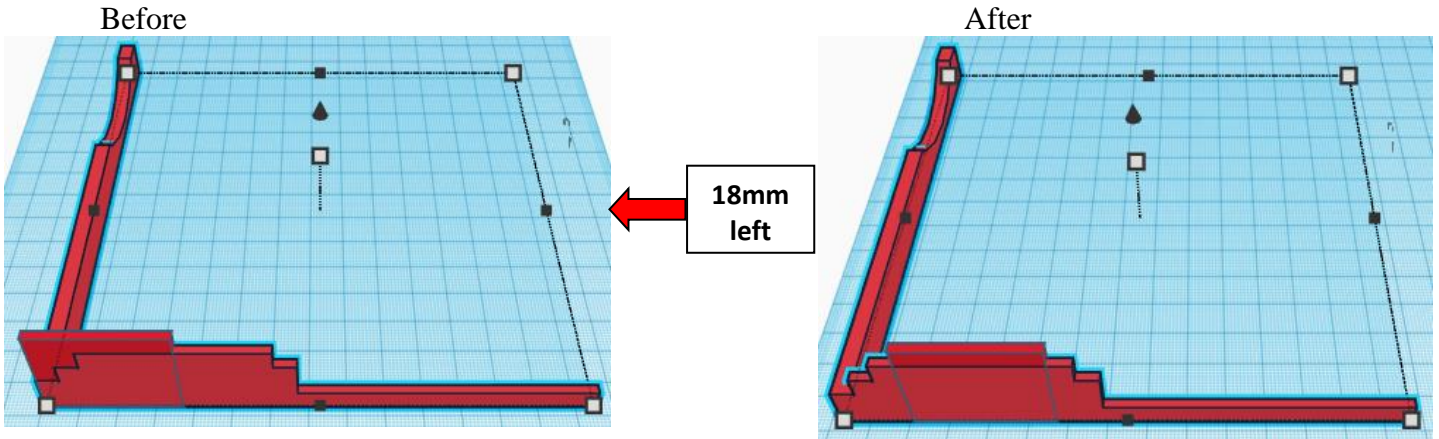
Group Frame and Glassframe 5
From now on this will be called the **Frame**
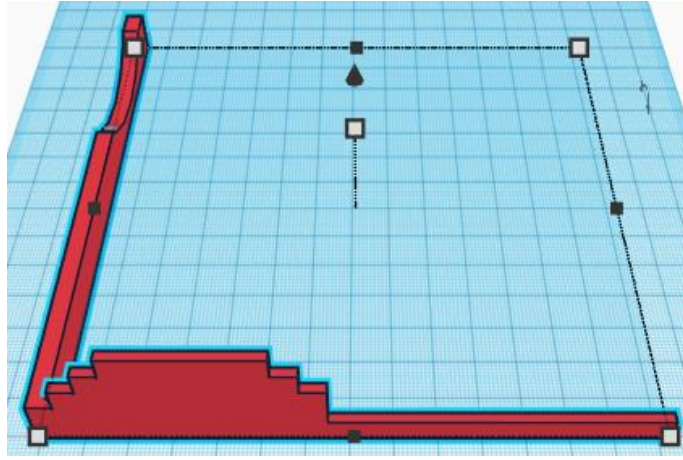
Corner Reinforcement:

Bring in a Wedge, located in Basic Shapes on the left 6 shapes down.
From now on this will be called the **Corner Reinforcement.**

Change the dimensions to
12mm X direction,
14mm Y direction, and
14mm Z direction.
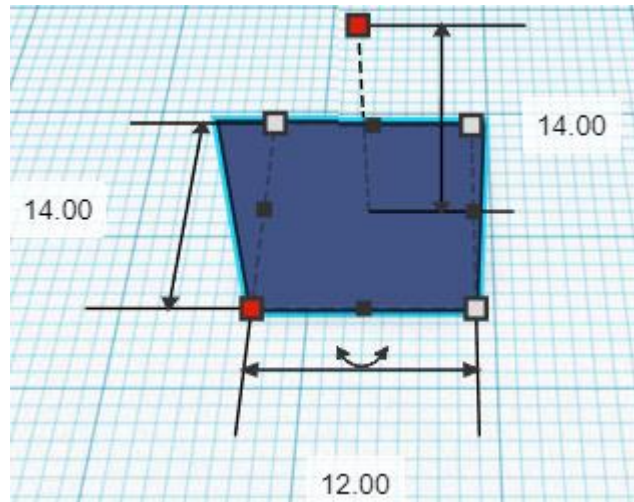
Go to TOP LEFT FRONT view for rotations click here
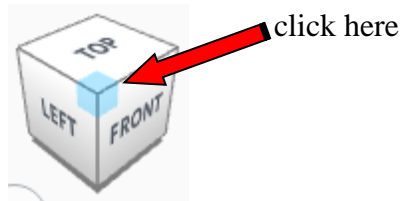
Rotate the Corner Reinforcement clockwise 90 degrees in XY plane.

Before

YZ plane

XZ plane

After

XY plane
Use this one

0°

90°
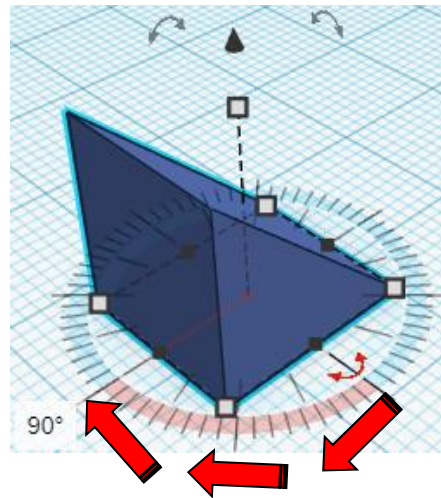
Go to TOP LEFT FRONT view for rotations click here
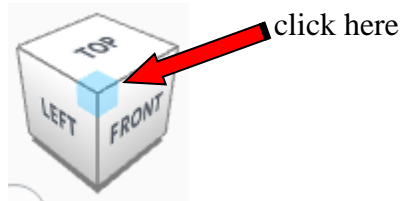
Rotate the Corner Reinforcement counter-clockwise 90 degrees in YZ plane.

Before

0°

YZ plane
Use this one

XZ plane

After

-90°

XY plane
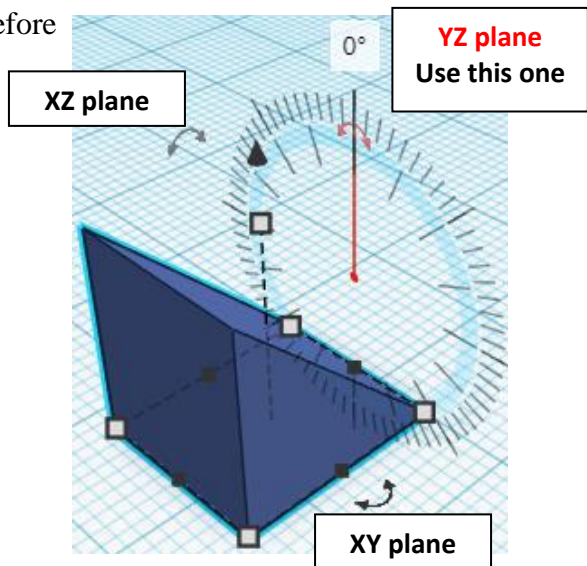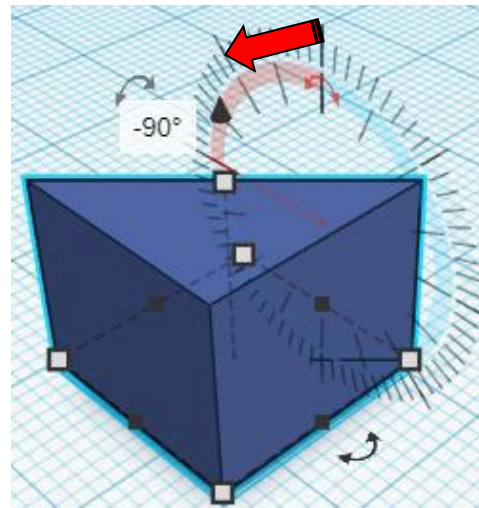
Align Frame and Corner Reinforcement

left in X direction,
front of Y direction, and
bottom of Z direction.
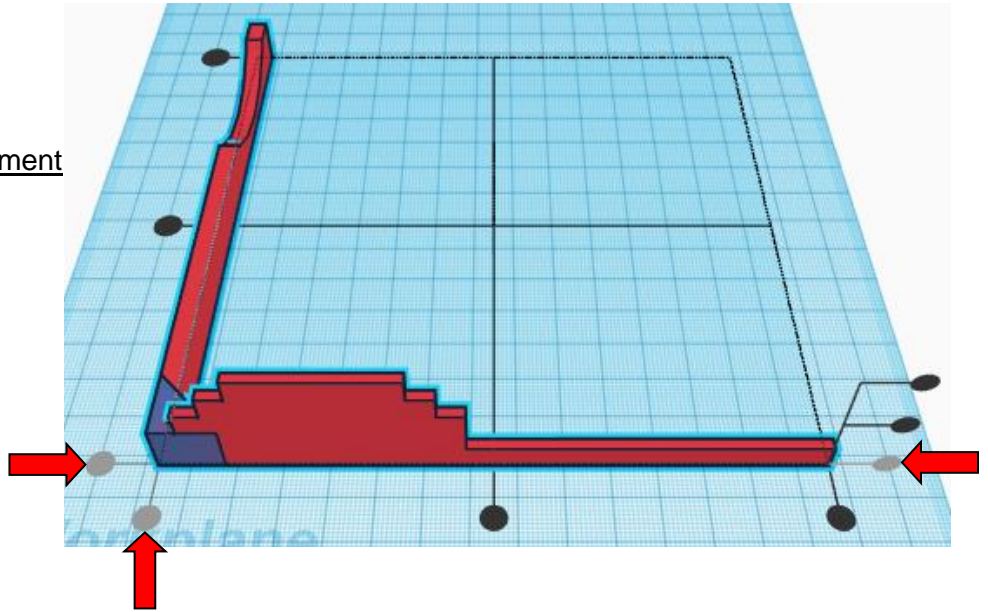
Group Frame and Corner Reinforcement
From now on this will be called the **Frame**
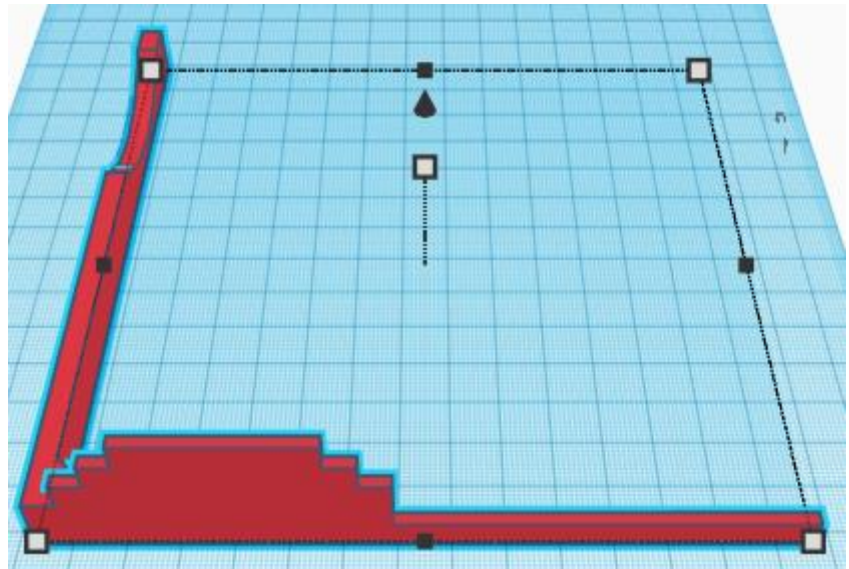
Duplicate <u>Frame</u> 1 time

Flip <u>Frame</u> in X direction.

Before   After

Y direction

Z direction

X direction
Use this one
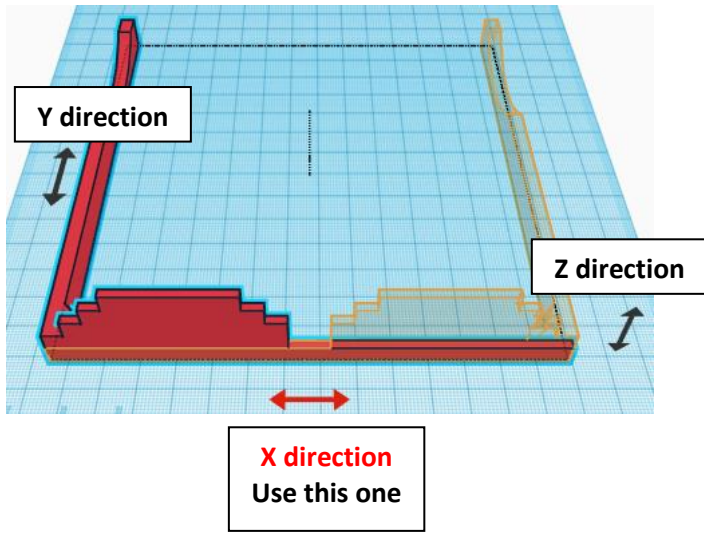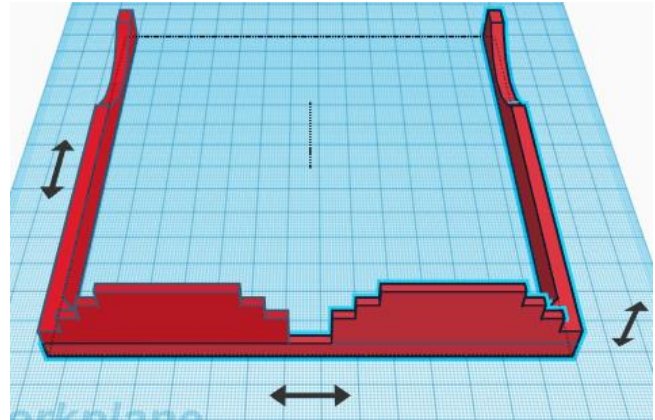
From now on this new flipped part will be called the **Right Frame**
while
the original part will be called the **Left Frame**

Group <u>Right Frame</u> and <u>Left Frame</u>
From now on this will be called the **Frame**
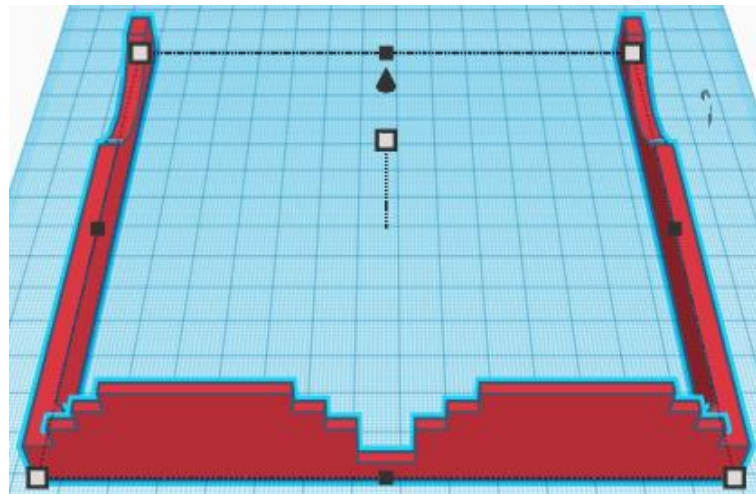
Glass Cutout:
Bring in a Box (Cutout), located in Basic Shapes on the left 1 shape down.
From now on this will be called the **Glass Cutout.**

Change the dimensions to
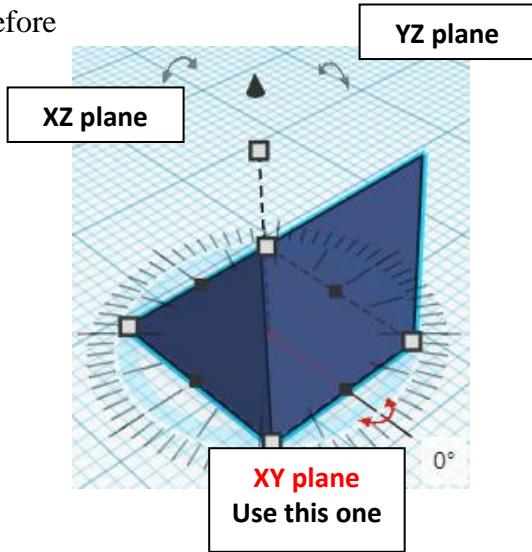6mm X direction,
2mm Y direction, and
6mm Z direction.
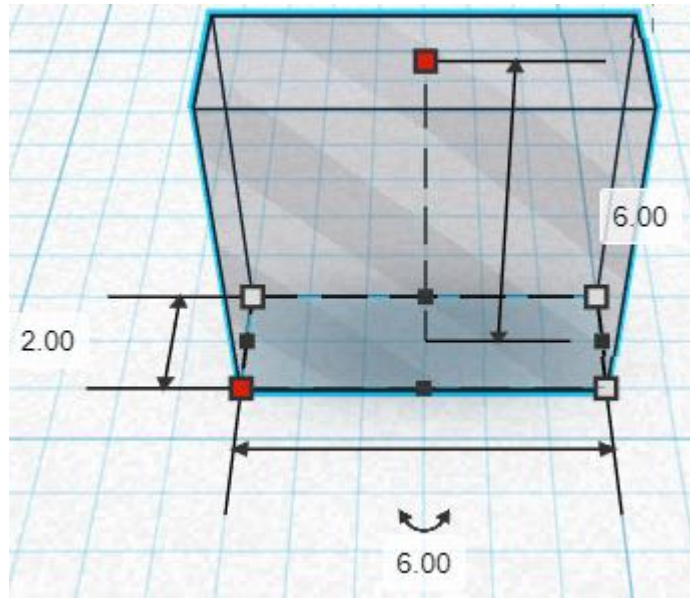
Duplicate Glass Cutout 1 time

Move Glass Cutout   (Must be in home view for this to work!)
move left in negative X direction 12mm

Hint: Select Glass Cutout and push left arrow key 12 times.
         Or
         Select Glass Cutout and hold shift and push left arrow key 1 times,
         Then release shift and push left arrow key 2 times.

Before   After

12mm
left

Group both Glass Cutouts
From now on this will be called the **Glass Cutouts**

Duplicate Glass Cutouts 1 time

Move Glass Cutouts   (Must be in home view for this to work!)
move left in negative X direction 6mm

Hint: Select Glass Cutouts and push left arrow key 6 times.

Before   After

6mm
left
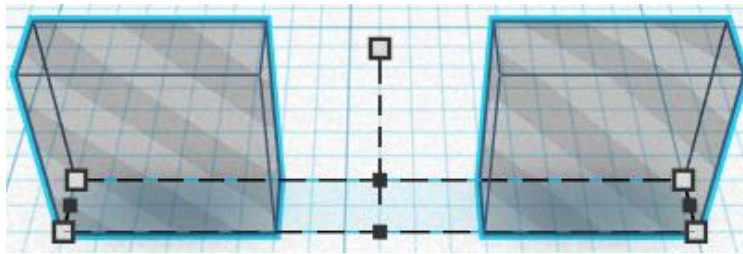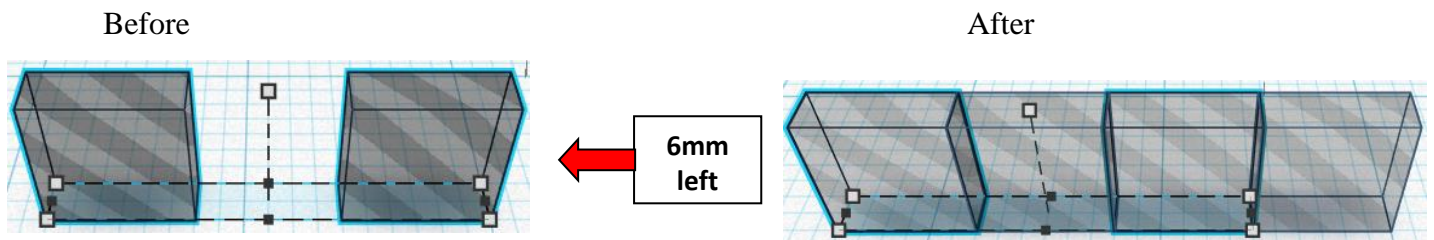
And then
Move Glass Cutouts   (Must be in home view for this to work!)
move up in positive Z direction 6mm

Hint: Select Glass Cutouts and hold control and push up arrow key 6 times.

Before   After

6mm
Up
(hold control)
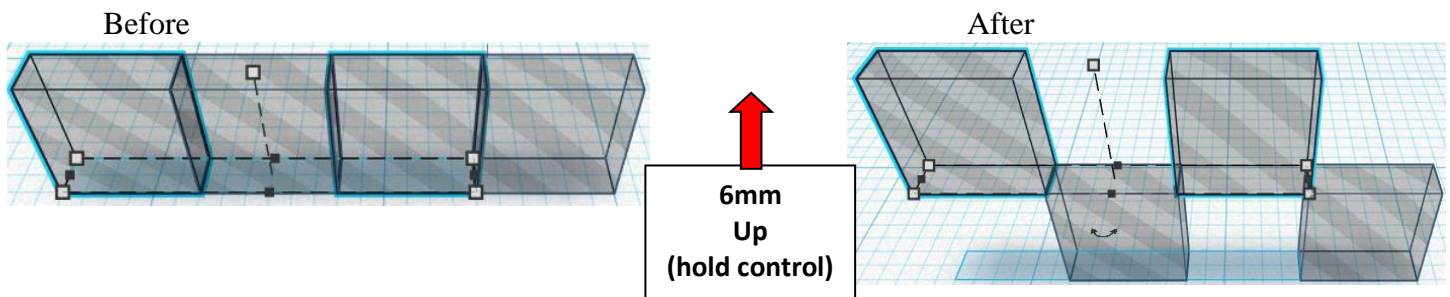
IMMEDIATLY
Duplicate Glass Cutouts 1 time

This will duplicate and repeat the two move actions just completed after the first duplicate.

If you have done any other action before repeating the
duplication, then this trick doesn't work and you will have to manually repeat the two move actions.
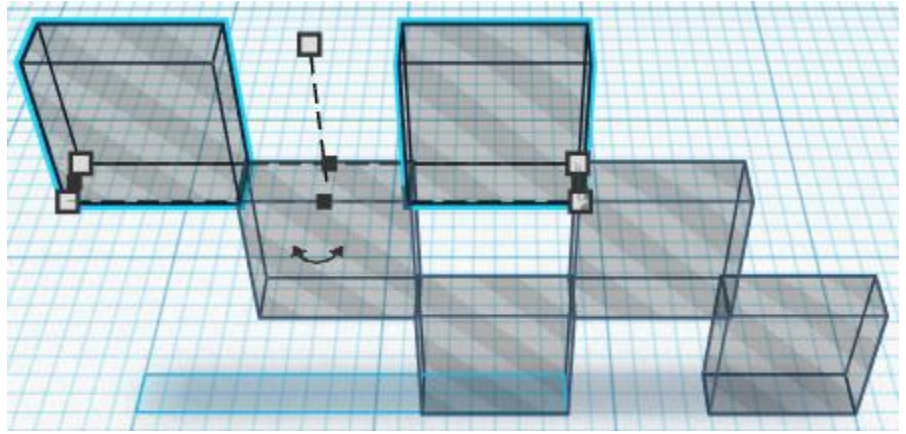
Group all Glass Cutouts
From now on this will be called the **Glass Cutouts**
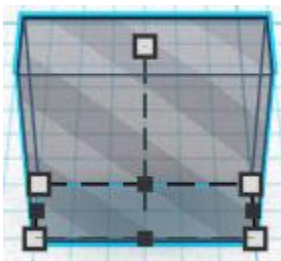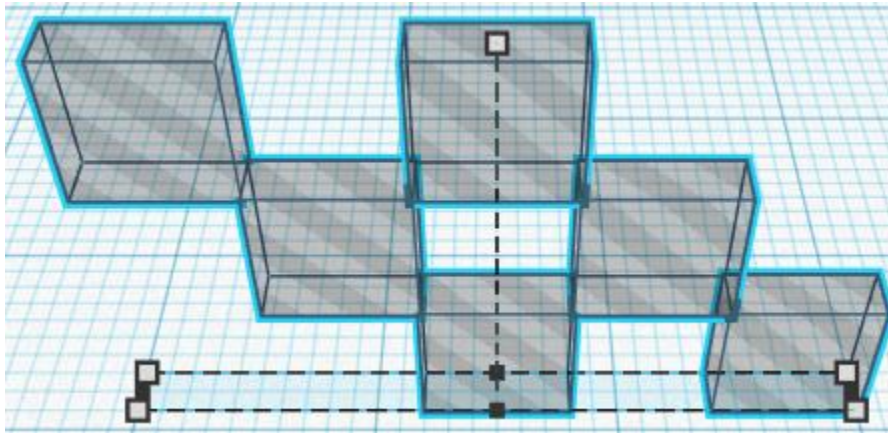

Duplicate Glass Cutouts 1 time

Move Glass Cutouts   (Must be in home view for this to work!)
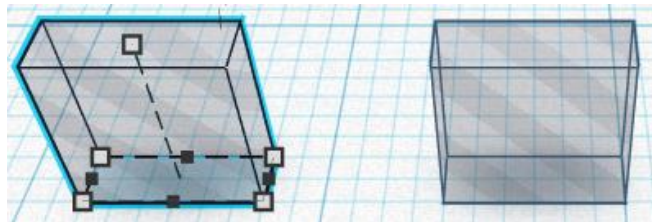move left in negative X direction 72mm

Hint: Select Glass Cutouts and push left arrow key 72 times.
         Or
         Select Glass Cutout and hold shift and push left arrow key 7 times,
         Then release shift and push left arrow key 2 times.

Before   After

72mm
left
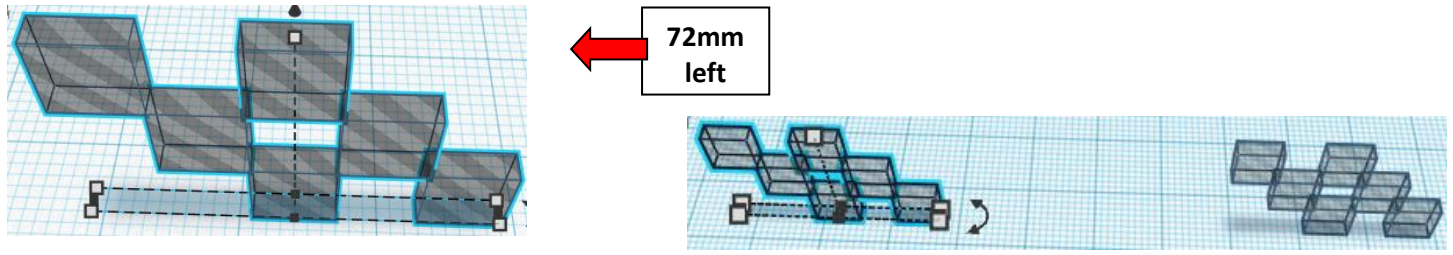
Group both Glass Cutouts
From now on this will be called the **Glass Cutouts**
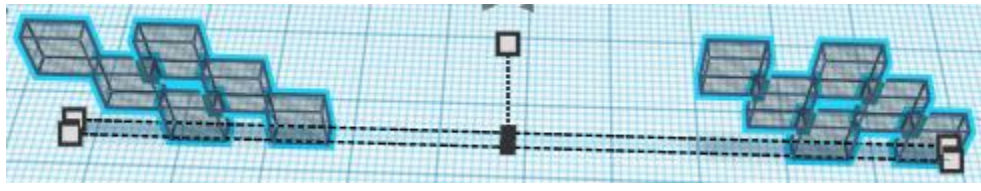
Align Frame and Glass Cutouts

right in X direction,
front of Y direction, and
bottom of Z direction.
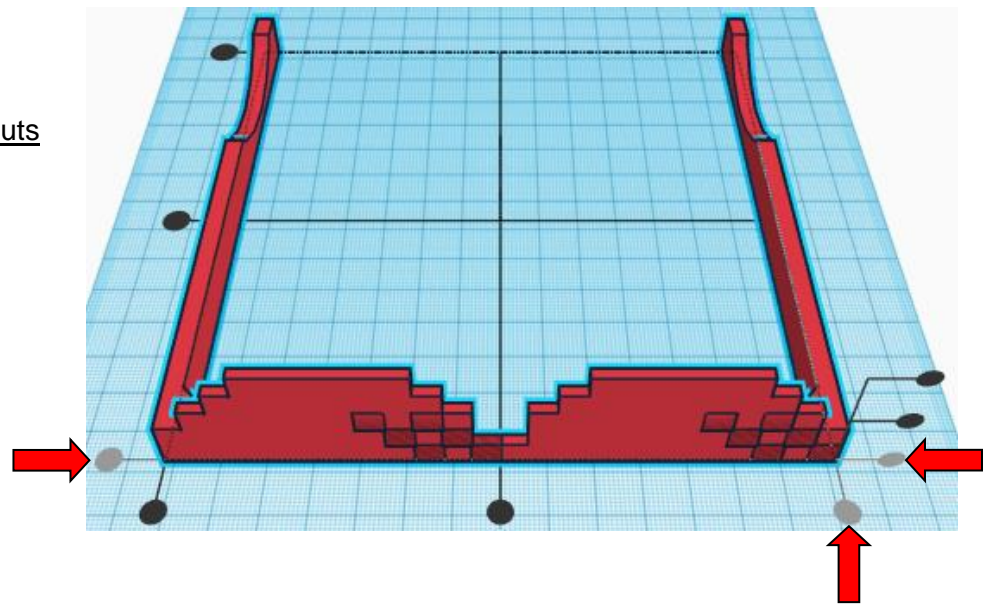
Move Frame   (Must be in home view for this to work!)
move right in positive X direction 12mm

Hint: Select Frame and push right arrow key 12 times.
Or
Select Frame and hold shift and push right arrow key 1 times,
Then release shift and push right arrow key 2 times.

Before   After

**12mm
left**
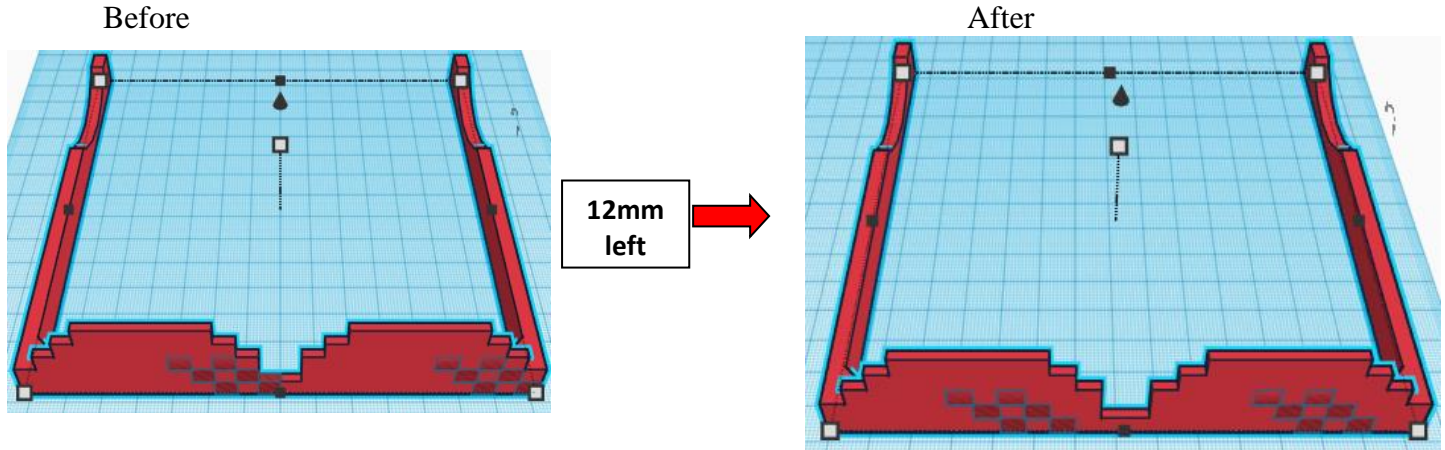
Move Frame   (Must be in home view for this to work!)
move down in negative Z direction 6mm

**Hint:** Select Frame and hold control and push down arrow key 6 times.

Before   After

**6mm
down
(hold control)**
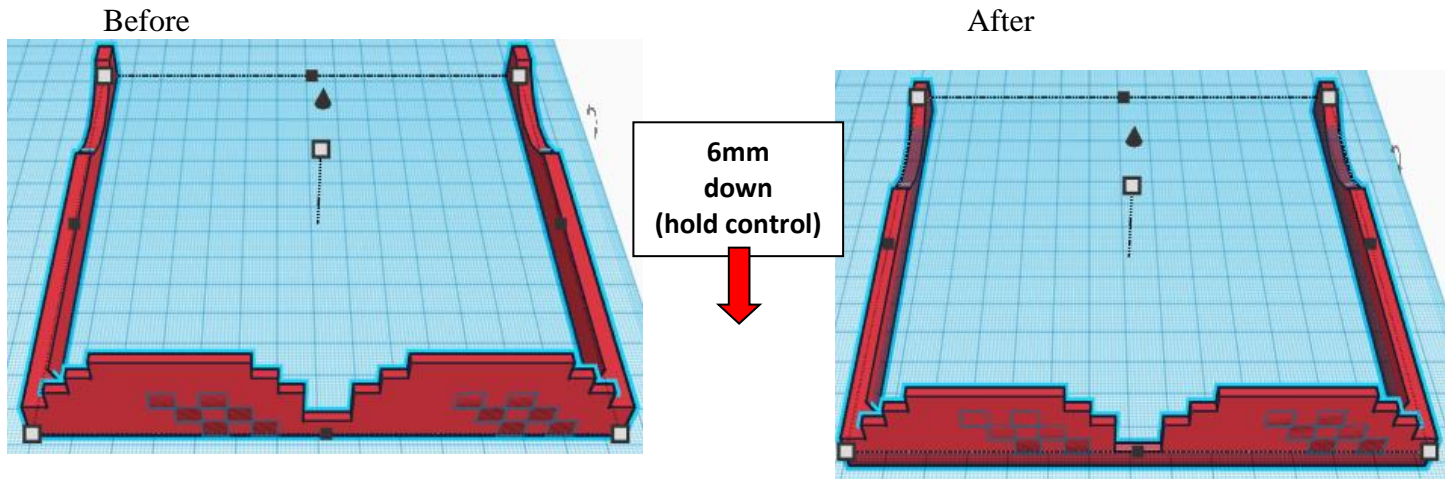
Group Frame and Glass Cutouts
From now on this will be called the **Thug Life Sunglasses**
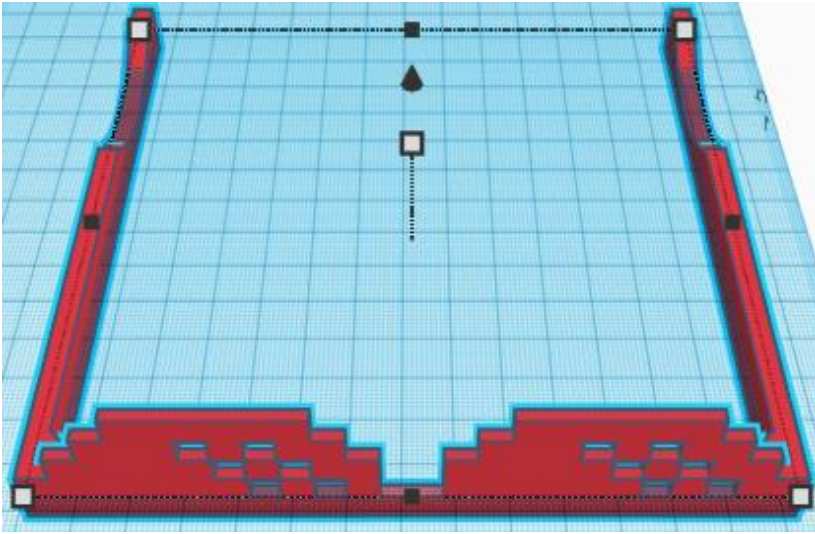
Set on Workplane:

Select the Thug Life Sunglasses and type "d" to set the body on the work plane.
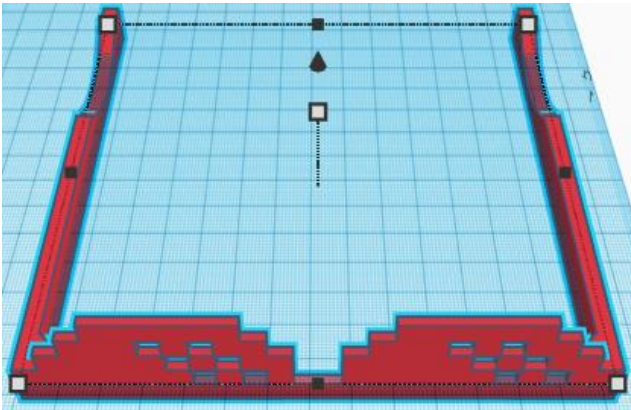
Before   After
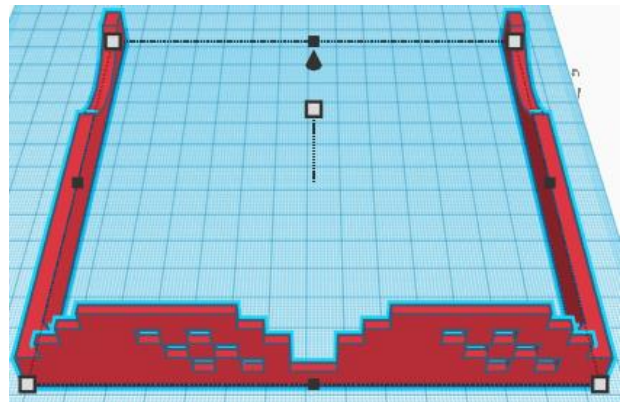
You're done!
Very stylish!

Enjoy

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

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

🏠 Home view

Aligning:

- Z top
- Z center
- Z bottom
- Y back
- X right
- Y center
- X center
- Y front
- X Left

Flip or Mirror and Move:

- positive Z
- Z direction
- negative Z
- positive Y
- Y direction
- positive X
- negative Y
- negative X
- X direction

Rotate:

Counter-Clockwise

Clockwise

XY Plane

0°

Counter-Clockwise

YZ Plane

Clockwise

0°

XZ Plane

Clockwise

Counter-Clockwise

0°

24
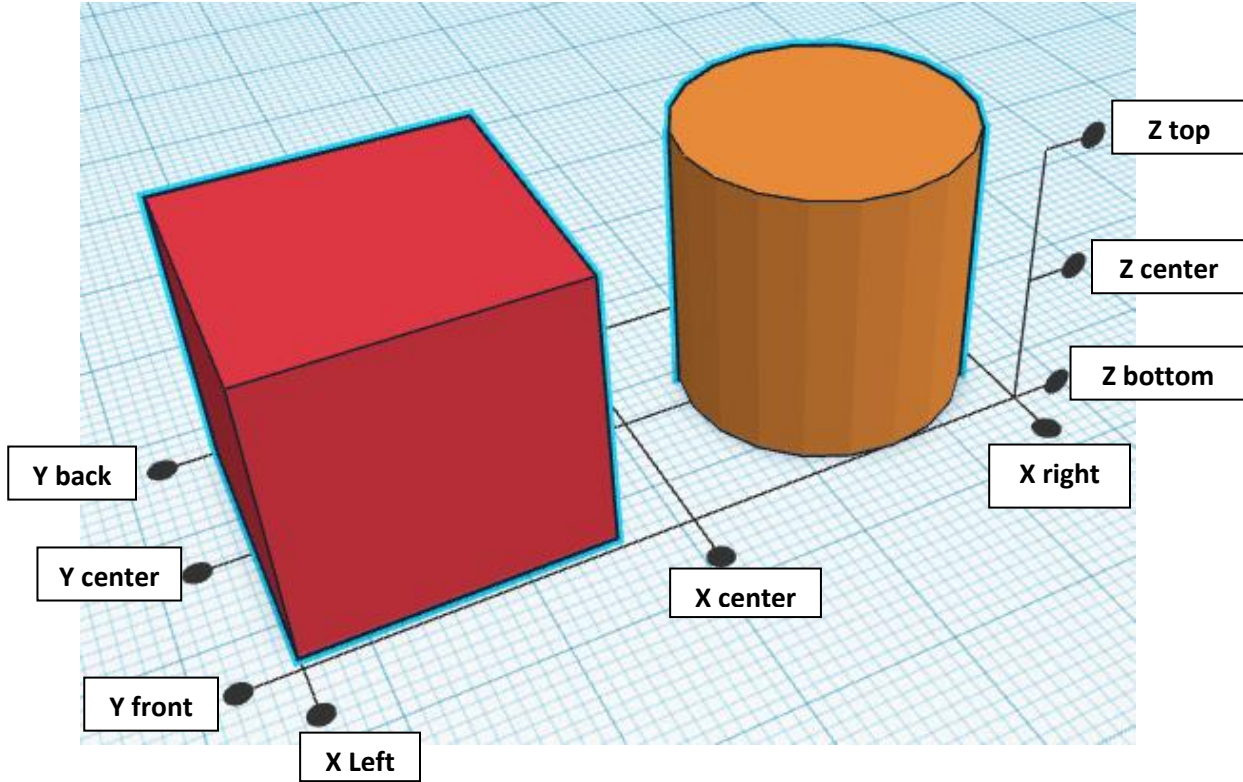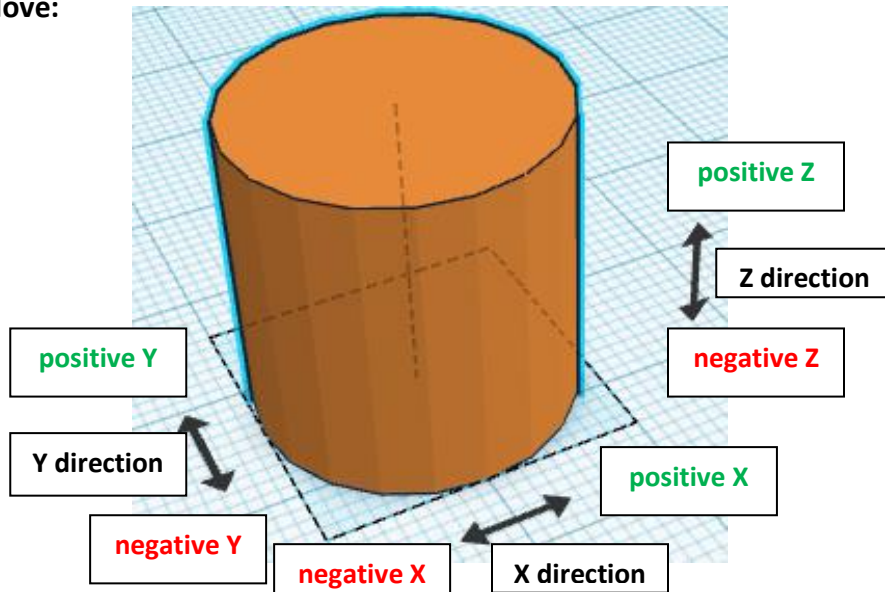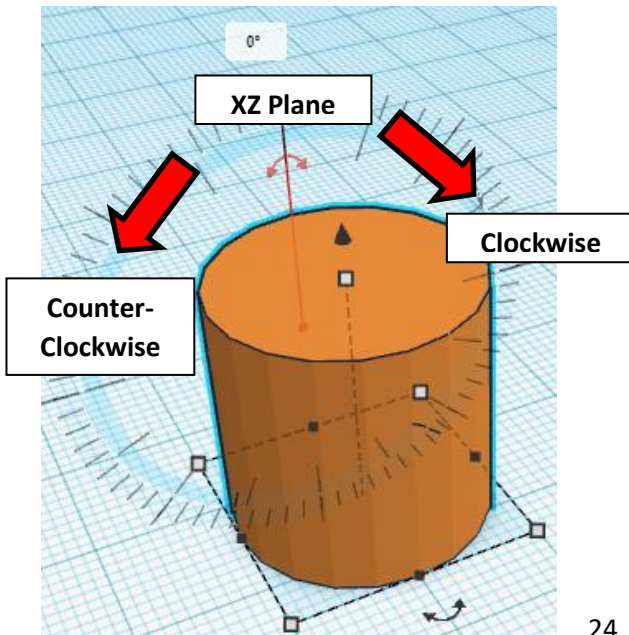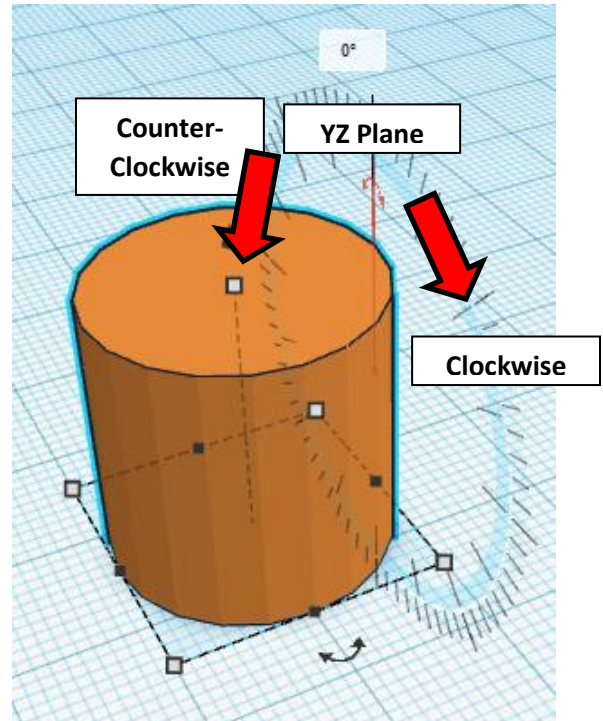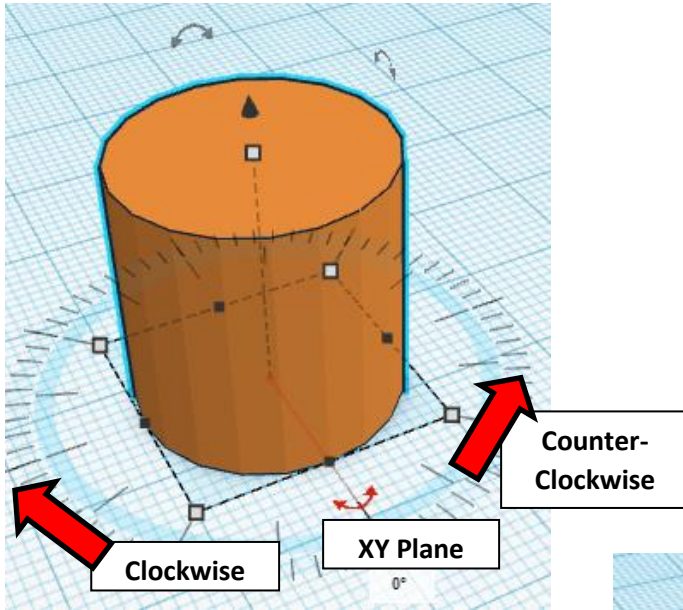
TinkerCAD Tool Guide

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 objects(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)

black cone

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.

22.00

22.00
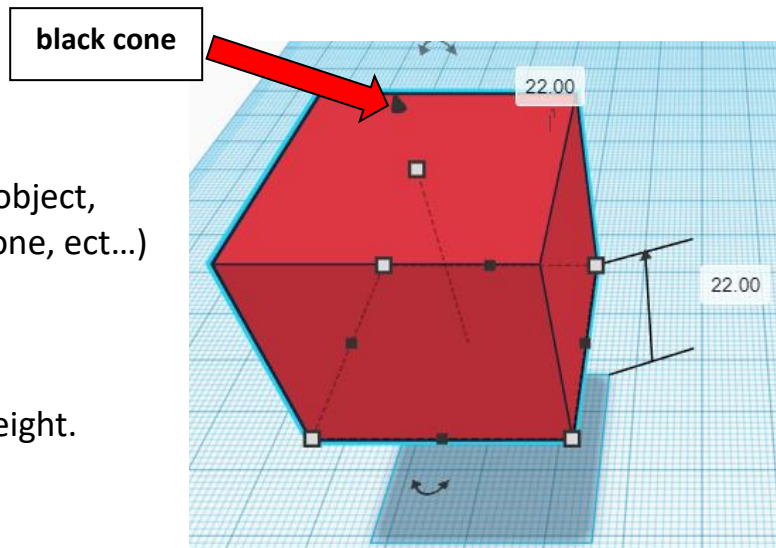
To move object(s) with keyboard:

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.

Shift

+

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 <u>1mm</u> increments.

In Z direction (fast)
(up/down)

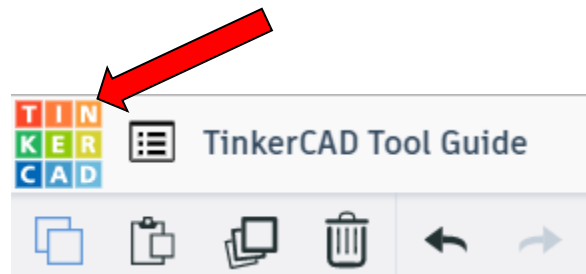Select object with left mouse button.

Hold control button and hold shift button
and use up and down arrow keys to move the object in <u>10mm</u> 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.
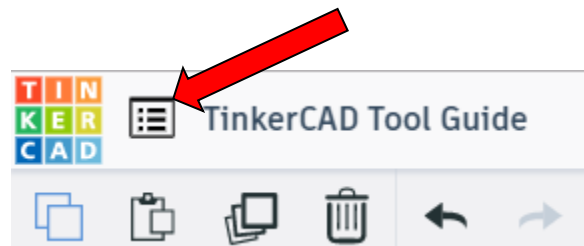
Design name:

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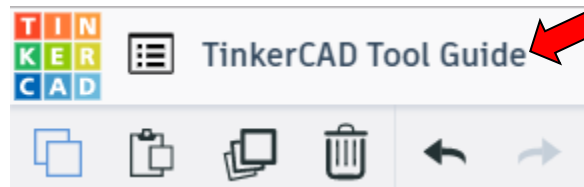
Copy:

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

Copy (Ctrl + C)
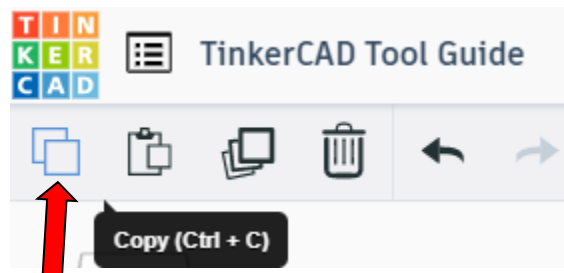
Paste:

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

Paste (Ctrl + V)
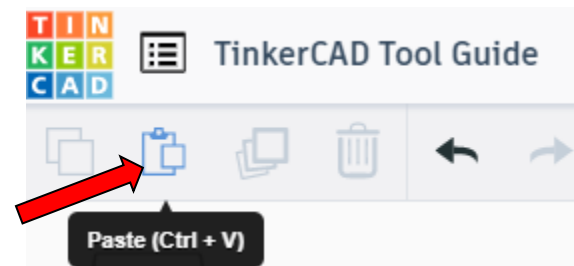
Duplicate:

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.

Duplicate (Ctrl + D)
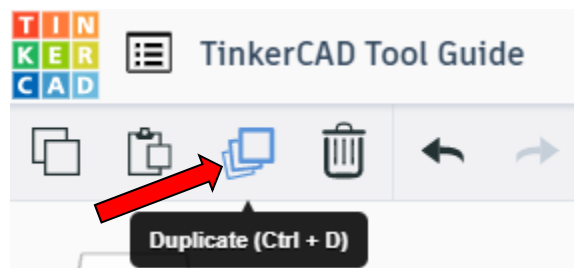
Delete:

Select shape.
Click delete or delete key.

Delete (Delete)

28
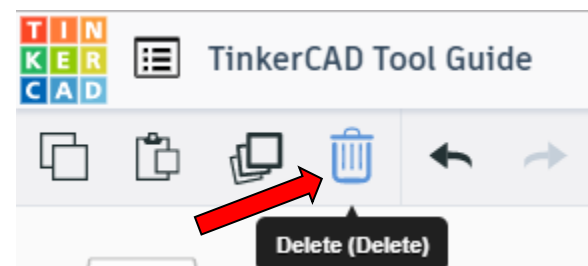
Undo:

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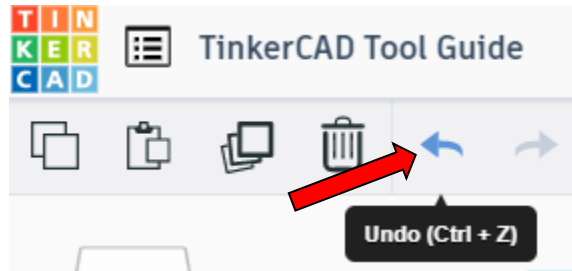
Redo:

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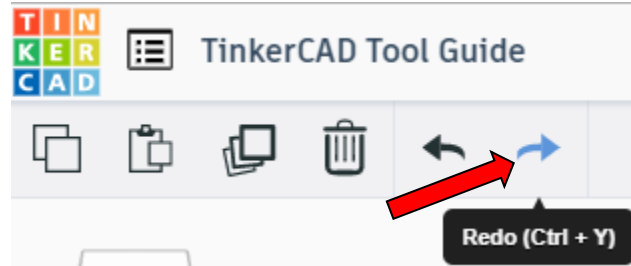
Change View:

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.
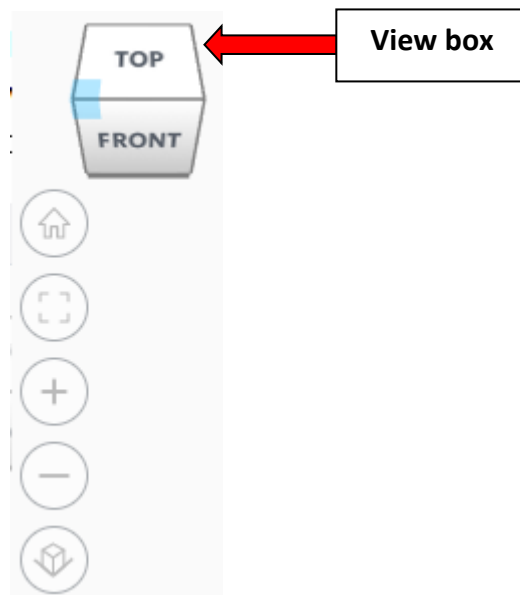
Change view to home view:

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.
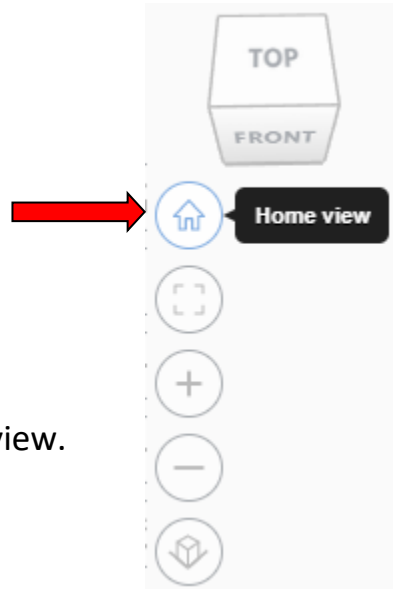
Fit all in view:

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.
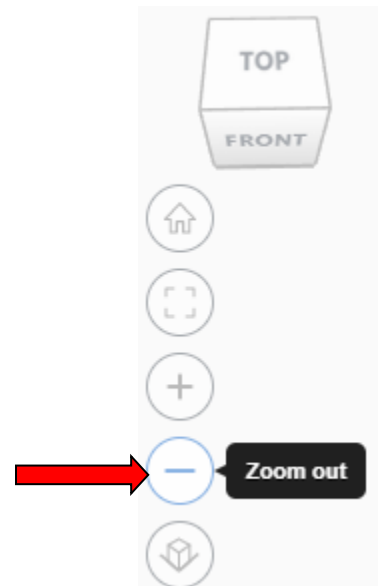
Switching to orthographic and perspective view:

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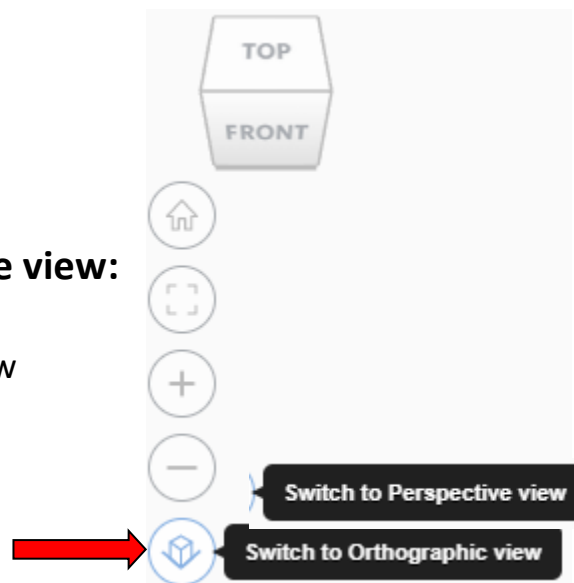
Group:

To combine two or more objects into one object.

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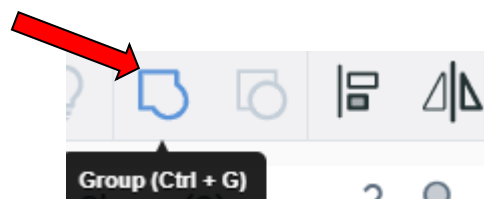
Ungroup:

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)

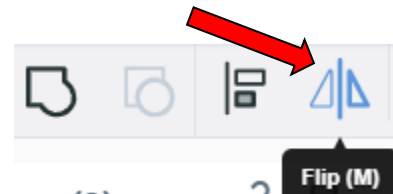|		
Duplicate dragged object(s)	Alt	+ Drag left mouse button
Select multiple object(s)	Shift	+ Left mouse button
45° rotation	Shift	(Hold while rotating)
Scale in one direction	Alt	+ Hold side handle
Scale in two directions	Alt	+ Hold corner handle
Uniform scale	Shift	+ Hold corner handle
Uniform scale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