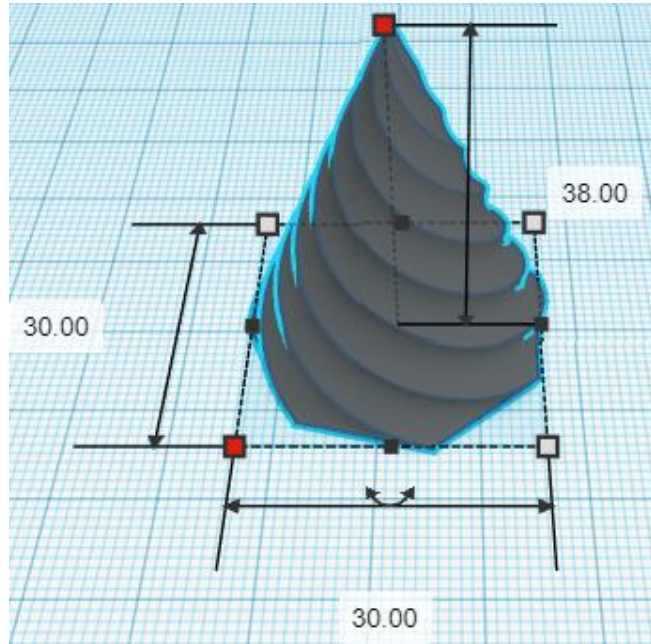# Christmas Swirl Ornament

Contents:

Swirls:

Bottom Swirl:
Bring in a Drill, located in All, (things in All move each time that TinkerCad adds items to All), this was last seen on page 7, on the top right.
From now on this will be called the **Small Swirl**

Change the dimensions to
30mm X direction,
30mm Y direction, and
38mm Z direction.

Bring in a Drill, located in All, (things in All move each time that TinkerCad adds items to All), this was last seen on page 7, on the top right.
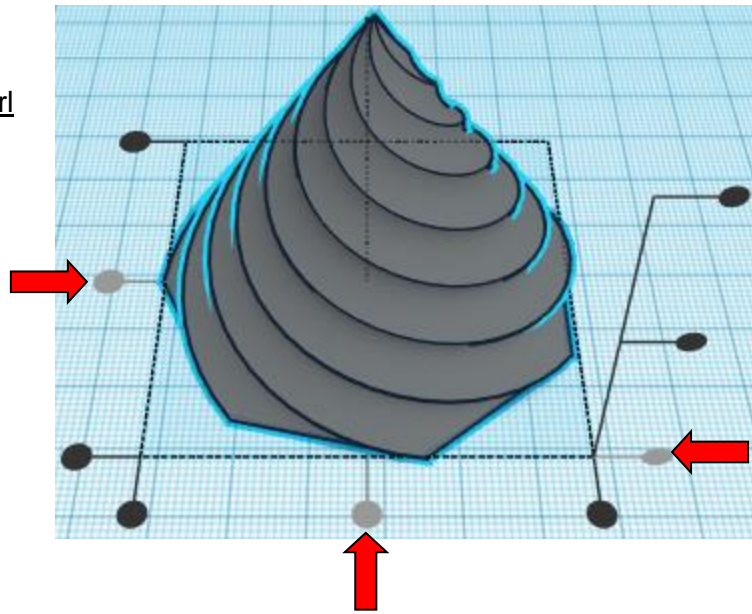From now on this will be called the **Large Swirl**

Change the dimensions to
60mm X direction,
60mm Y direction, and
50mm Z direction.
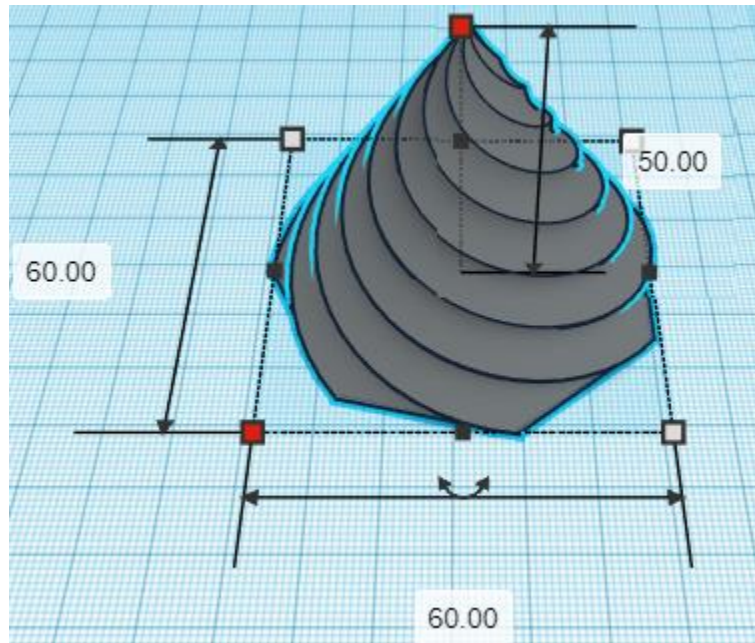
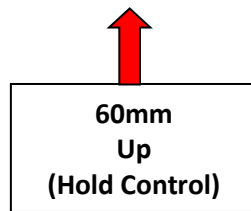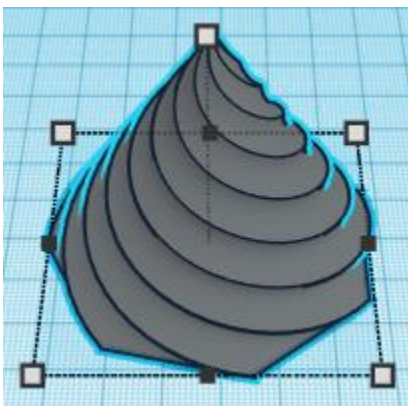**Align** <u>Small Swirl</u> and <u>Large Swirl</u>

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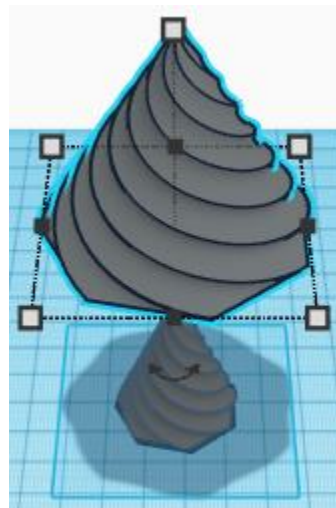bottom of Z direction.

Move <u>Large Swirl</u>   (Must be in home view for this to work!)
move up in positive Z direction 60mm

Hint: Select <u>Large Swirl</u> and hold control and push up arrow key 60 times.
     Or
     Select <u>Large Swirl</u> and hold control and hold shift and push up arrow key 6 times.
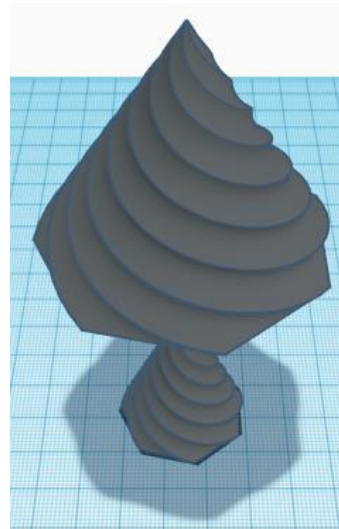
Before   After

60mm
Up
(Hold Control)
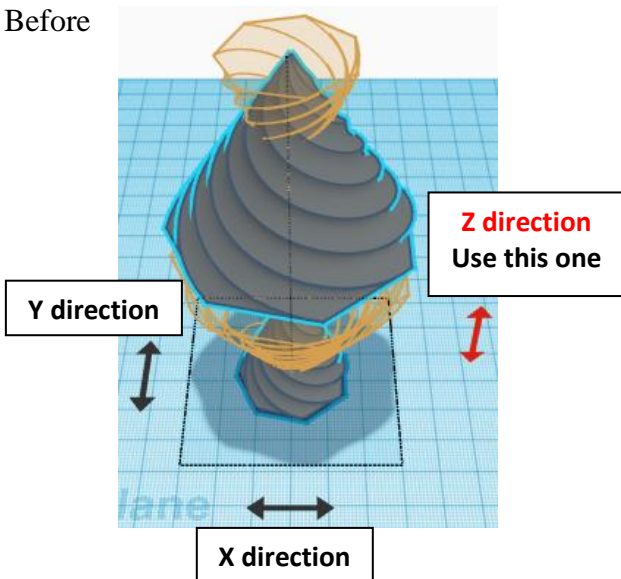
Group Small Swirl and Large Swirl
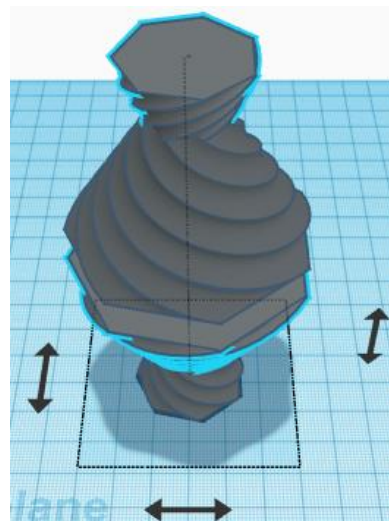From now on this will be called the **Right-side-up Swirls**

Duplicate Right-side-up Swirls 1 time

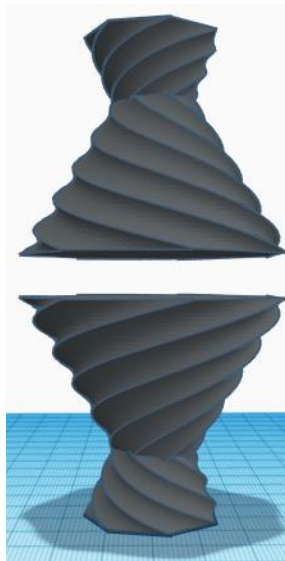**Flip** Right-side-up Swirls in Z direction.

Before

Z direction
Use this one

Y direction

X direction

After

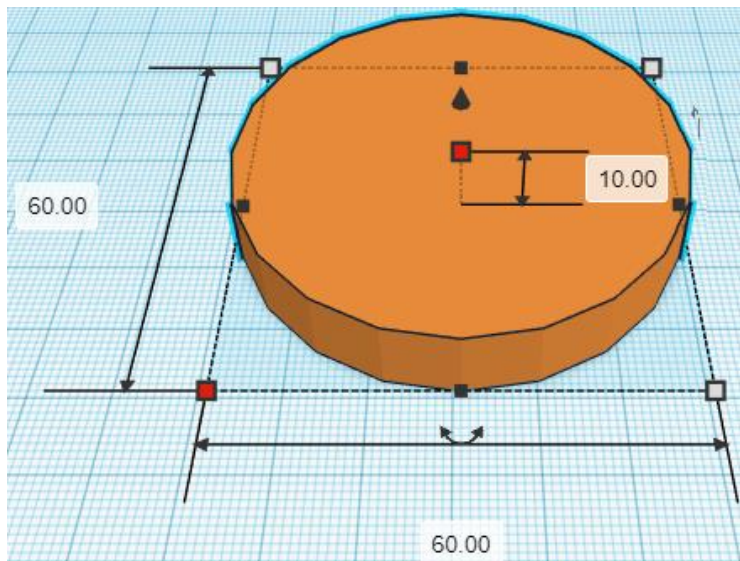**Group** Right-side-up Swirls and the Upside-down Swirls
From now on this will be called the **Grouped Swirls**

(And yes, there should be a gap, we will fill that during the next few steps.)

Saying Cylinder:

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

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

Bring in a Text Ring, located in All, (things in All move each time that TinkerCad adds items to All), this was last seen on page 2, on the left, 3rd shape down.
From now on this will be called the **Saying**
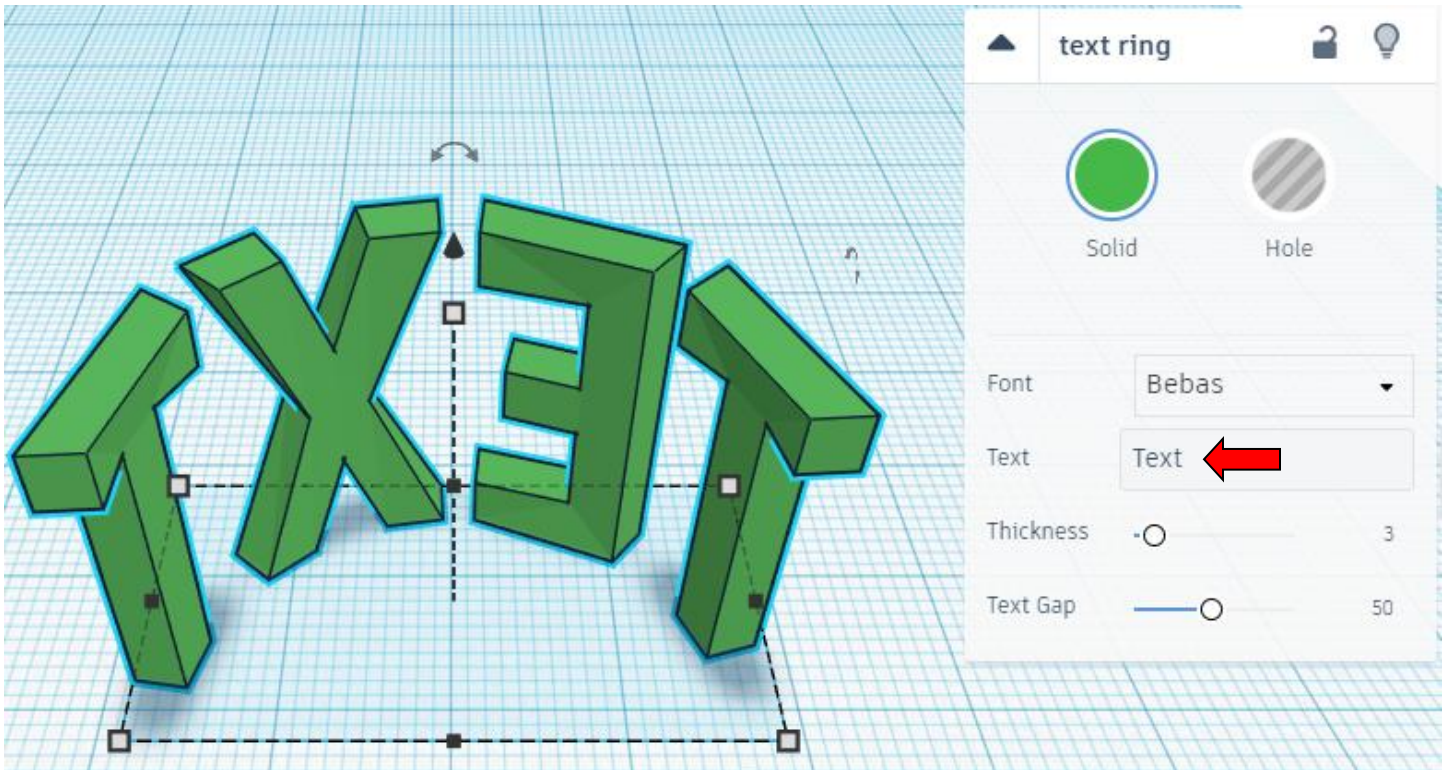
In the text box type your saying, it can be whatever you want.
Examples:

Merry Christmas   Happy Holidays   Baby's first Christmas 2020

              John Smith made this!   Music Rocks
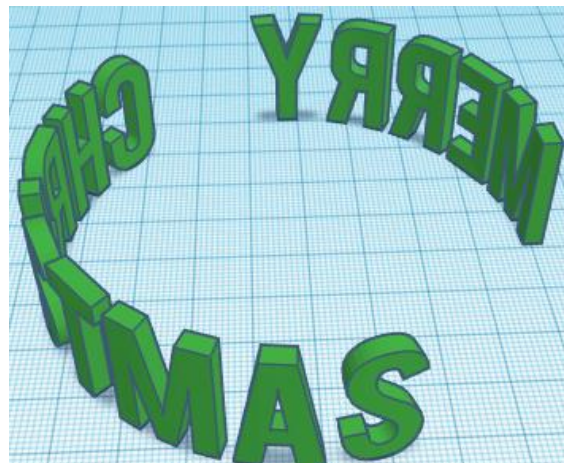
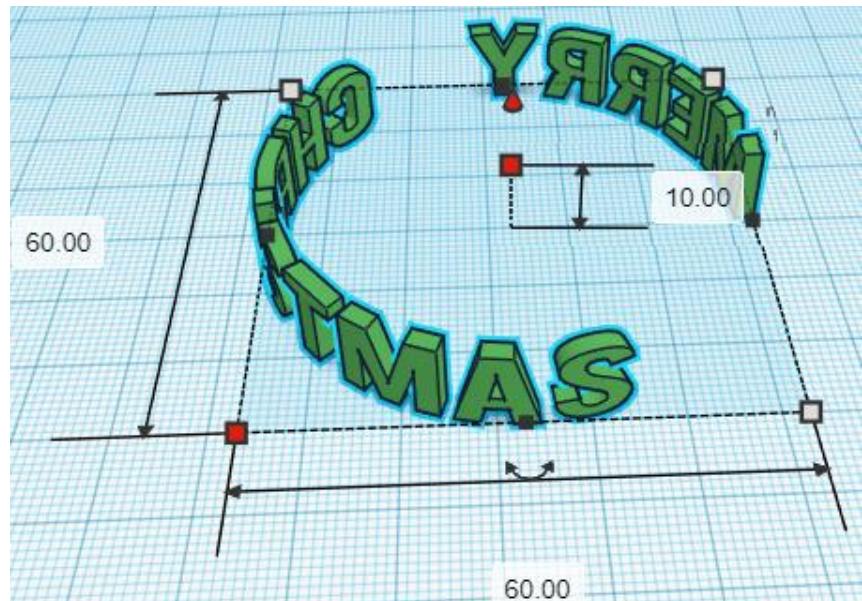I Love You   Pandemic 2020   TinkerCAD is Awesome!!!

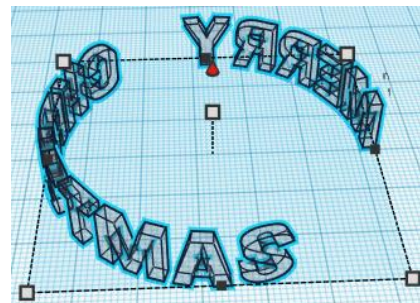Hint: add several spaces between words or the tend to run together and is hard to read.

I am going to choose Merry Christmas for my ornament.

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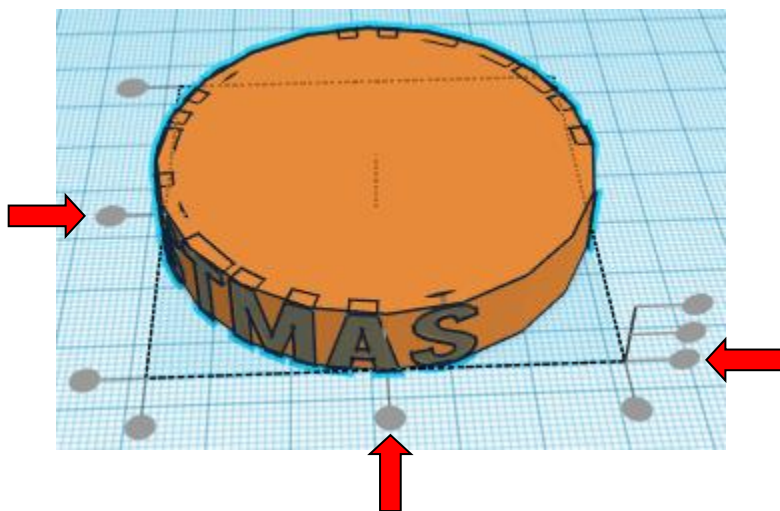60mm Y direction, and
10mm Z direction.

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

Align Saying and Cylinder

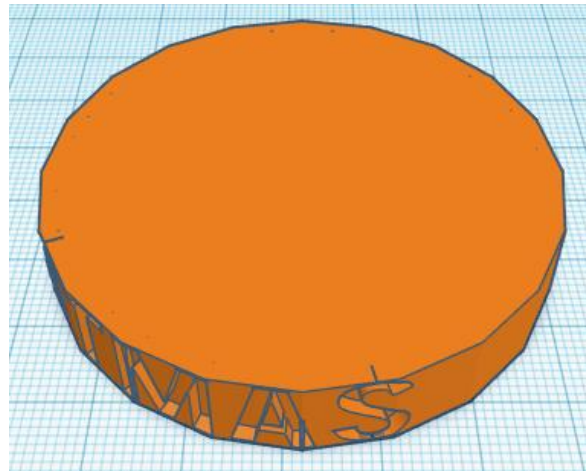centered in X direction,
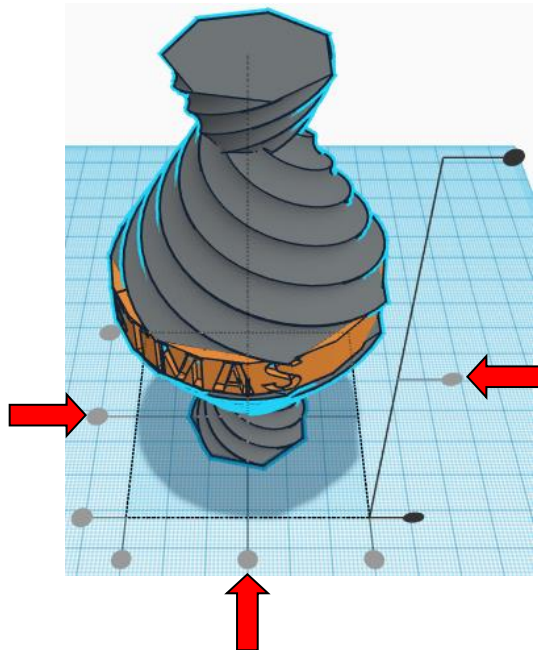centered of Y direction, and
bottom of Z direction.

Group Saying and Cylinder
From now on this will be called the **Saying Cylinder**

Align Saying Cylinder and Grouped Swirls

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

Group Saying Cylinder and Grouped Swirls
From now on this will be called the **Christmas Swirl Ornament**
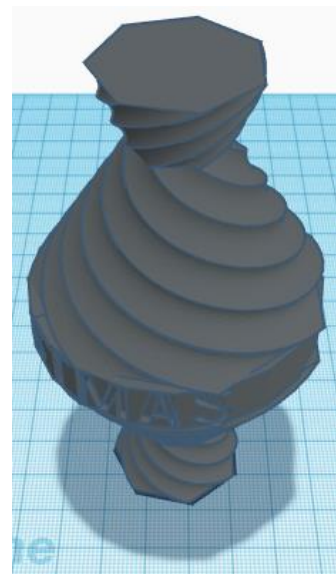
Hook:

Bring in a Torus, located in Basic Shapes on the right 8 shapes down.
From now on this will be called the **Hook**

Change the dimensions to
24mm X direction,
30mm Y direction, and
6mm Z direction.
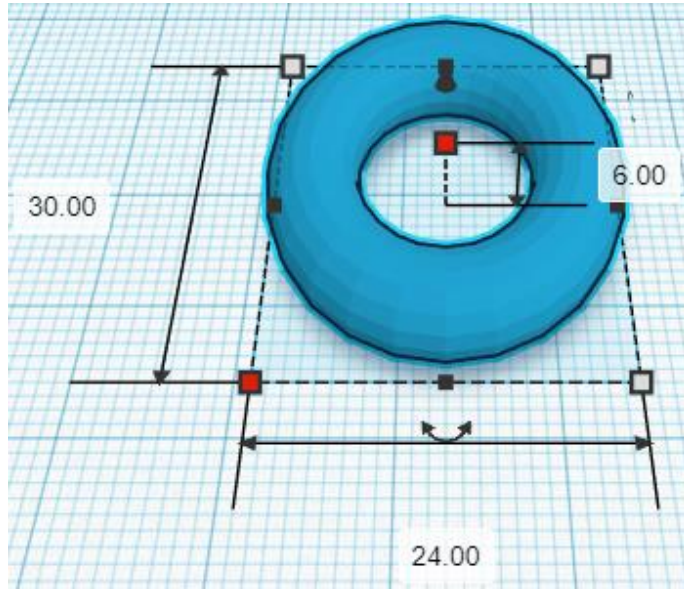
Go to TOP LEFT FRONT view for rotations click here

Rotate the Hook clockwise 90 degrees in YZ plane.

Before

XZ plane

YZ plane
Use this one

XY plane
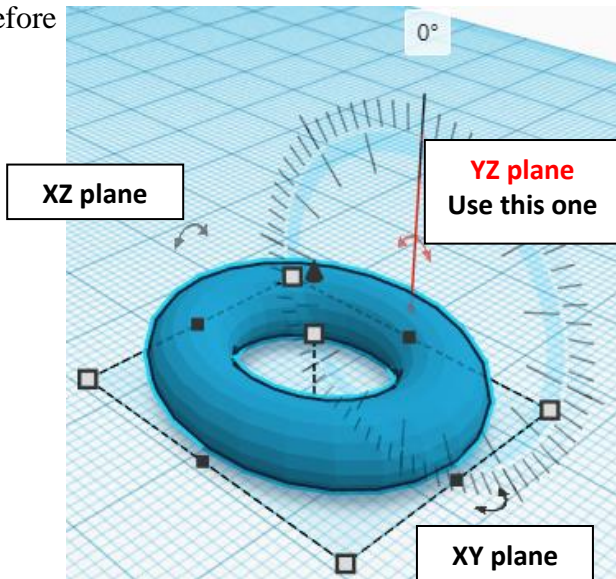
After
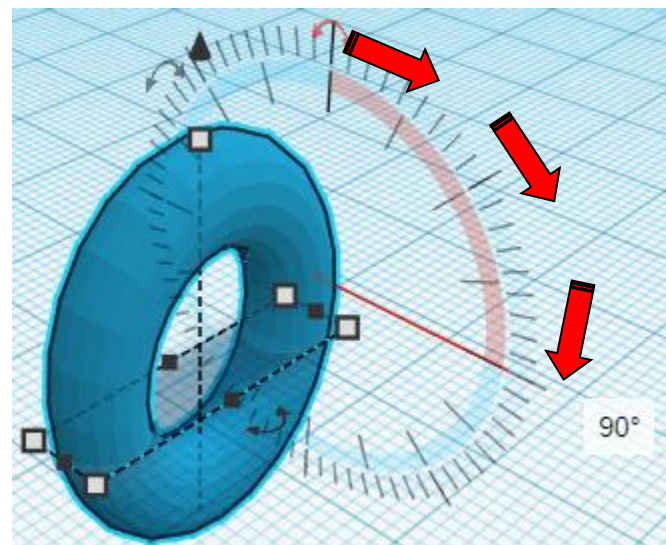
Align Christmas Swirl Ornament and Hook
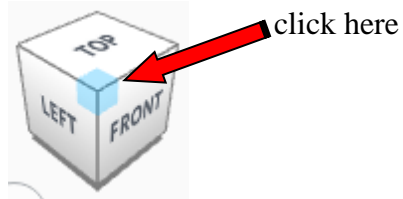
centered in X direction,
centered of Y direction, and
top of Z direction.
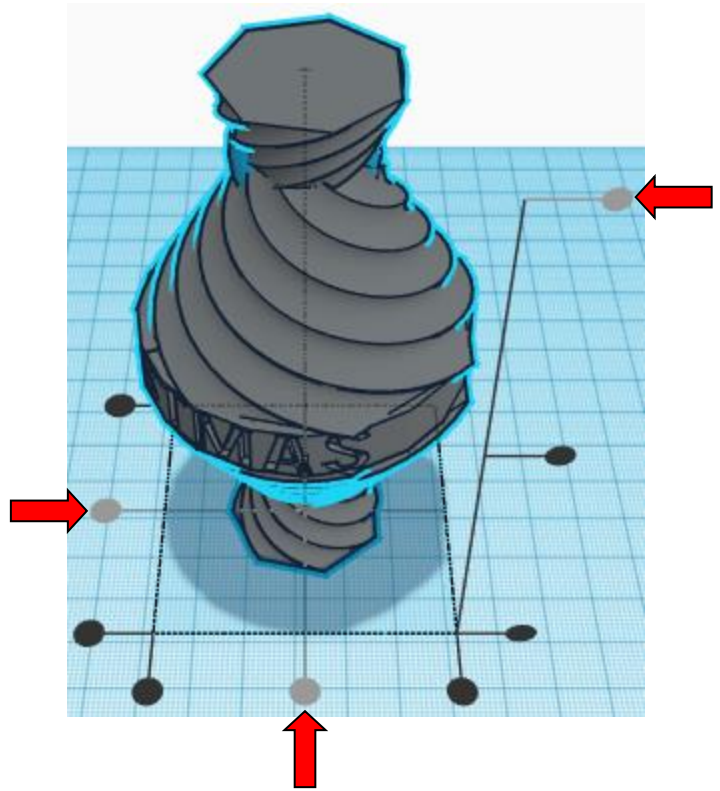
Move Christmas Swirl Ornament   (Must be in home view for this to work!)
move down in negative Z direction 15mm

Hint: Select Christmas Swirl Ornament and hold control and push down arrow key 15 times.
     Or
     Select Christmas Swirl Ornament and hold control and hold shift and push down arrow key 1 times,
     Then release shift and push down arrow key 5 times.

Before   After
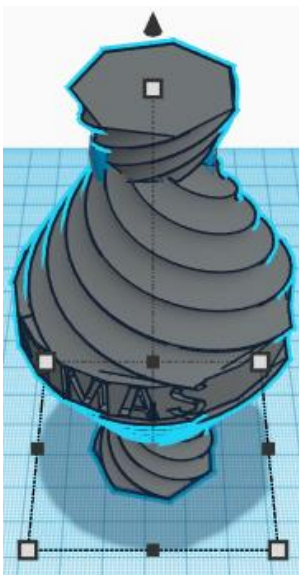
15mm
down
(hold control)
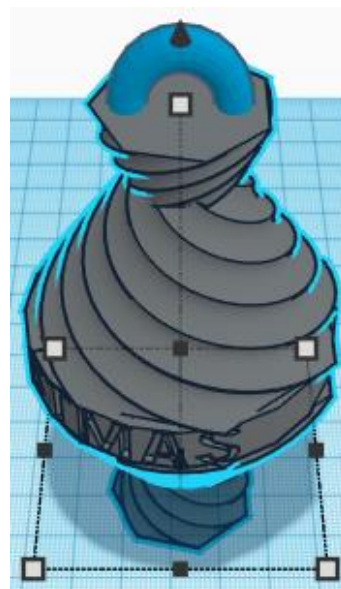
Group Christmas Swirl Ornament and Hook
From now on this will be called the **Christmas Swirl Ornament**
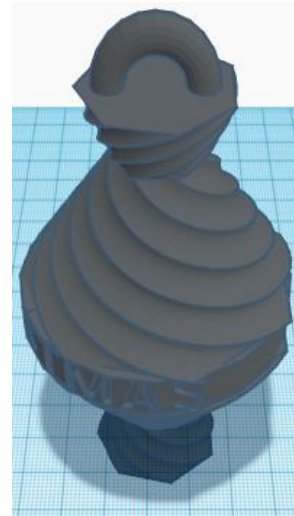
Set on Workplane:

Select the Christmas Swirl Ornament and type "d" to set the body on the work plane.
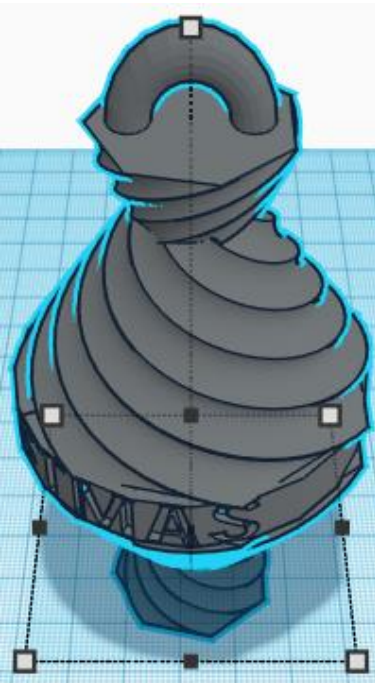
Before   After
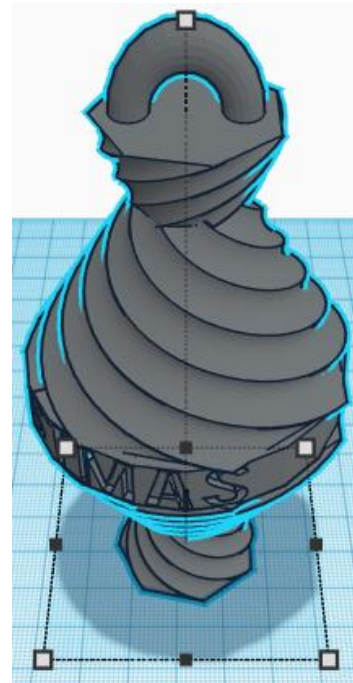
You are done!

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

Rotate:

Counter-Clockwise

Clockwise

XY Plane

0°

Counter-Clockwise

YZ Plane

0°

Clockwise

0°

XZ Plane

Clockwise

Counter-Clockwise
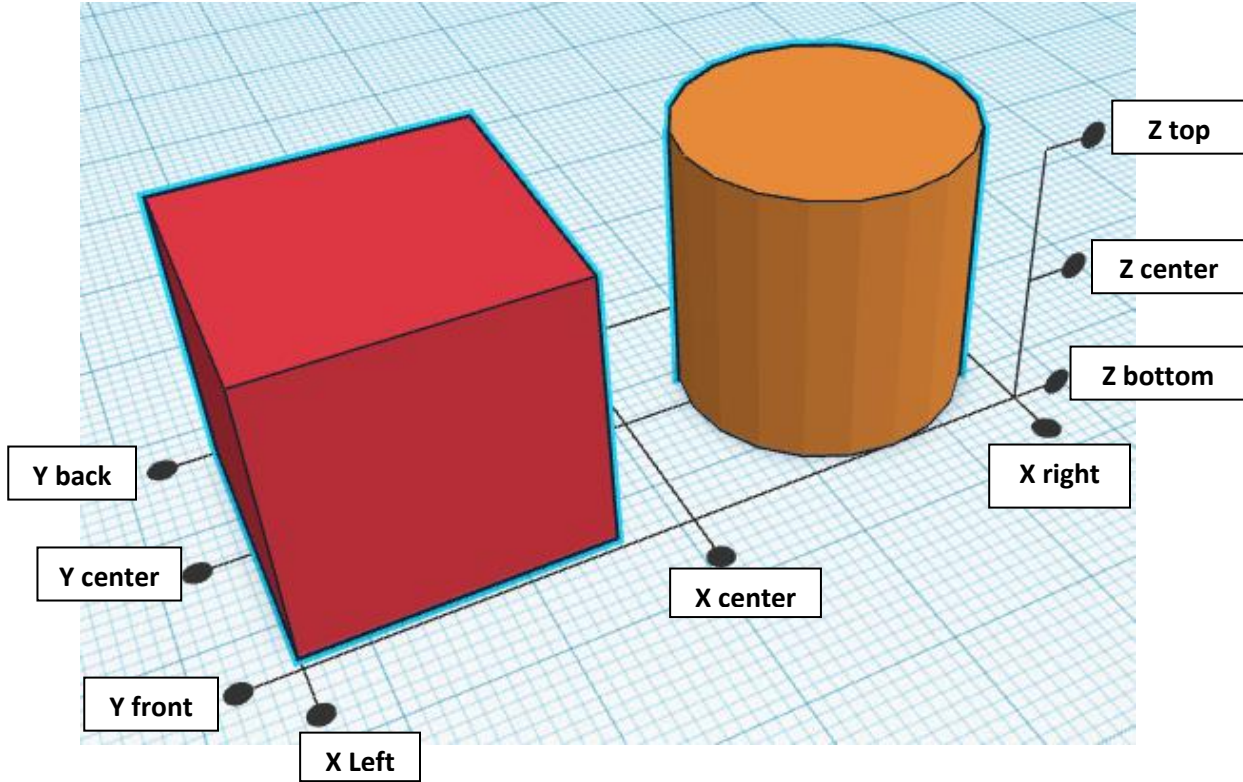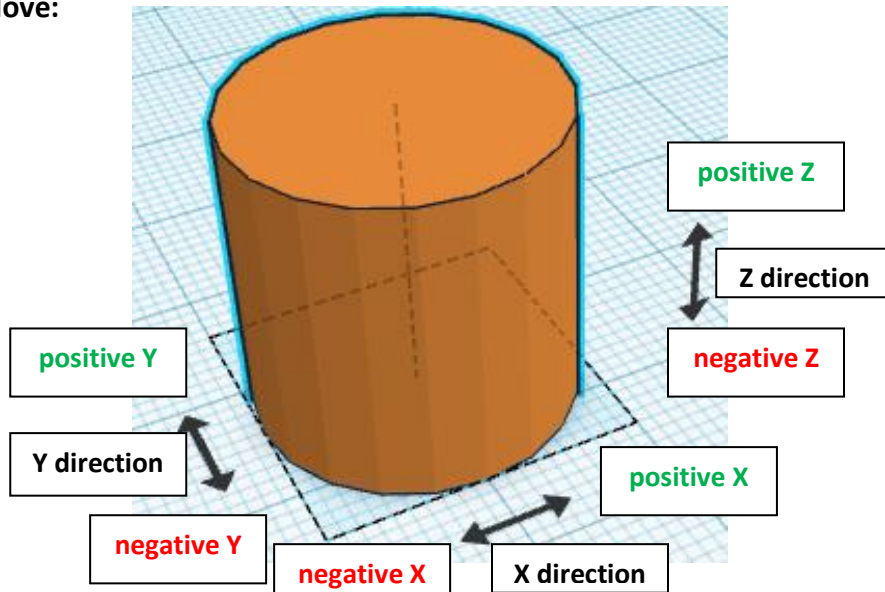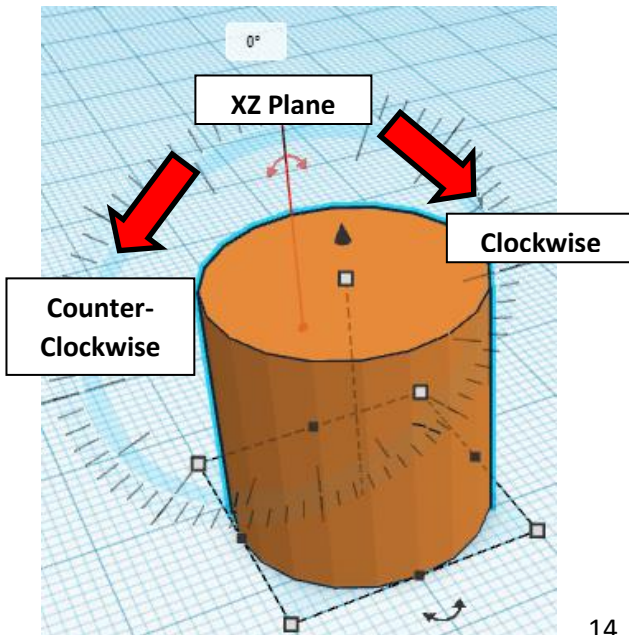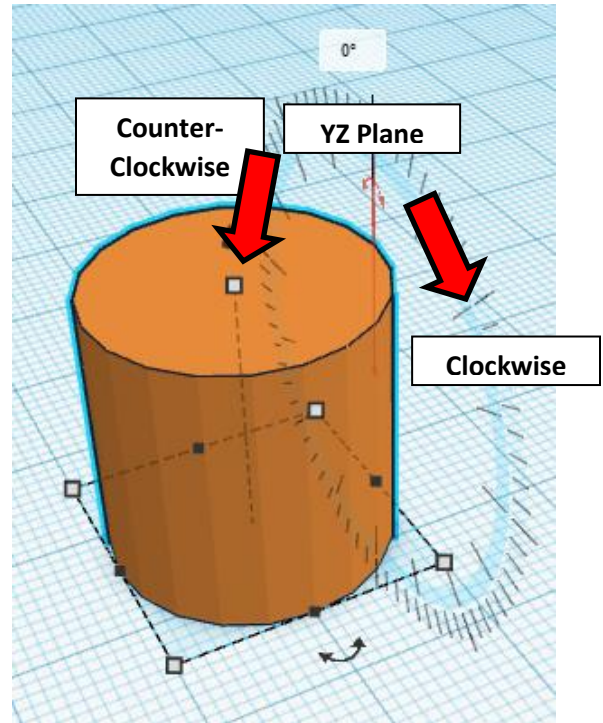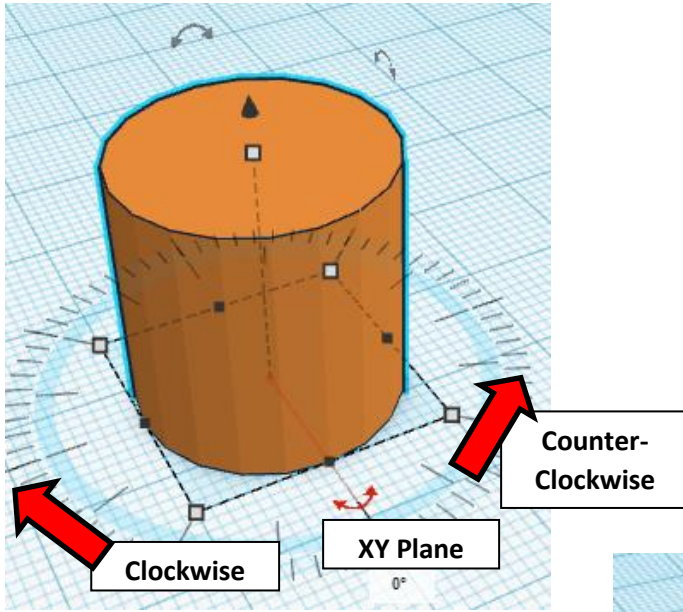
TinkerCAD
Tool Guide

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)

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.
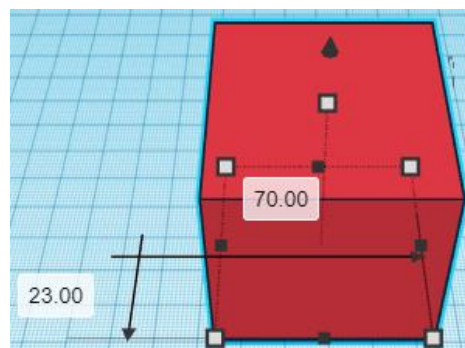Move mouse up or down to desired height.

black cone
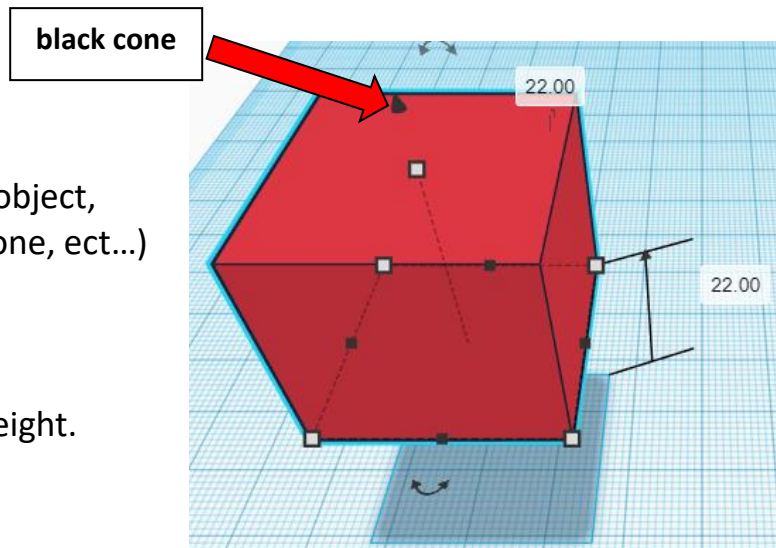
To move object(s) with keyboard:

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 <u>1mm</u> increments.

In Z direction (fast)
(up/down)

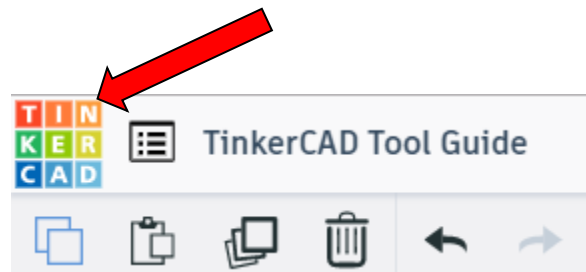Select object with left mouse button.

Hold control button and hold shift button
and use up and down arrow keys to move the object in <u>10mm</u> increments.
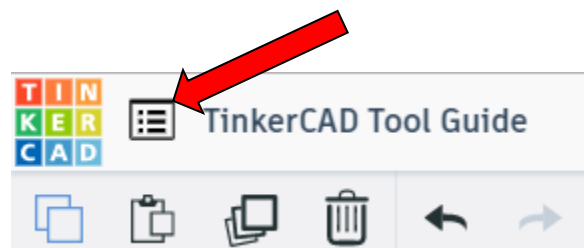
Using on screen icons:

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.
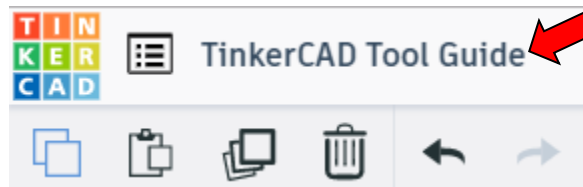
Copy:

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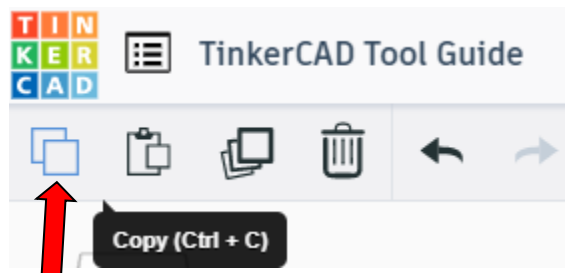
Paste:

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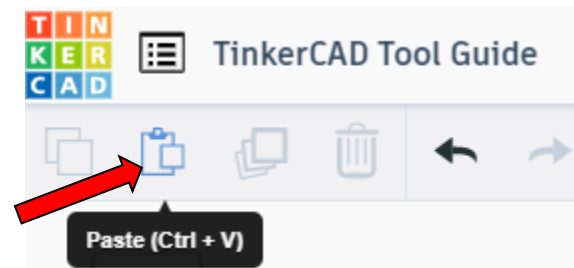
Duplicate:

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.
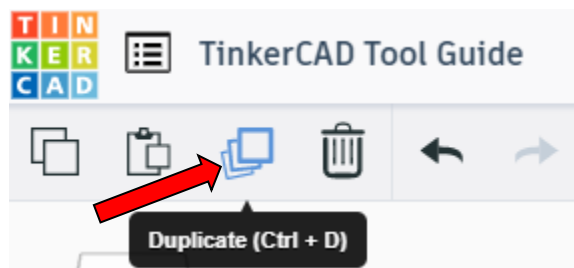
Delete:

Select shape.
Click delete or delete key.
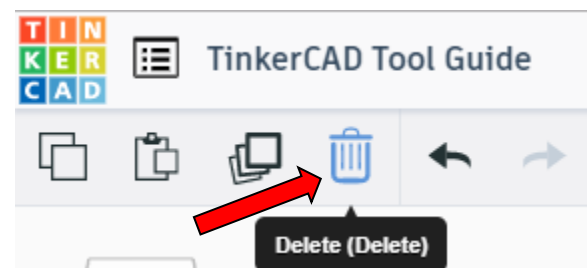
Undo:

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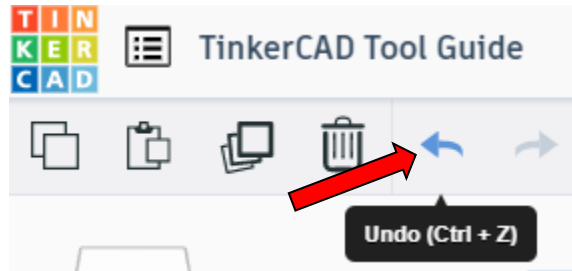
Redo:

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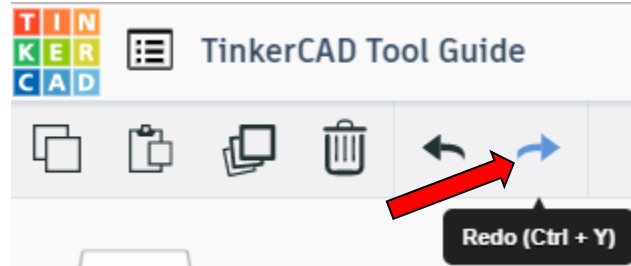
Change View:

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.
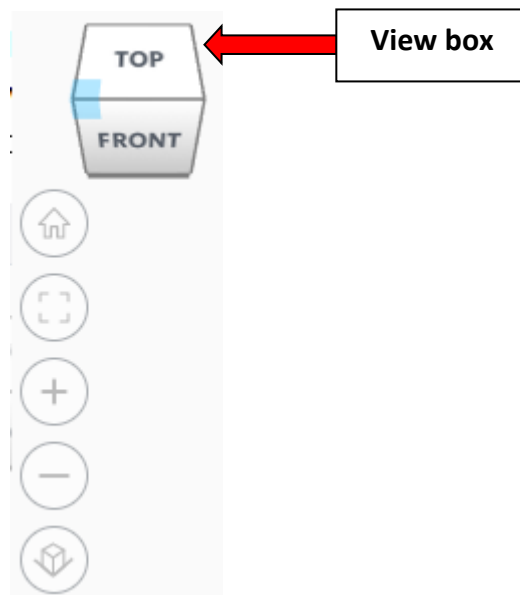
View box

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.
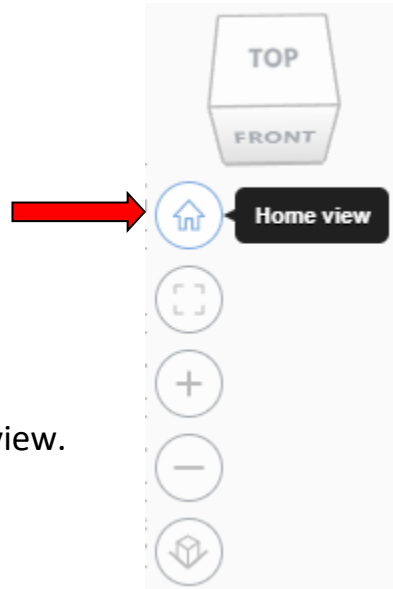
Fit all in view:

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).
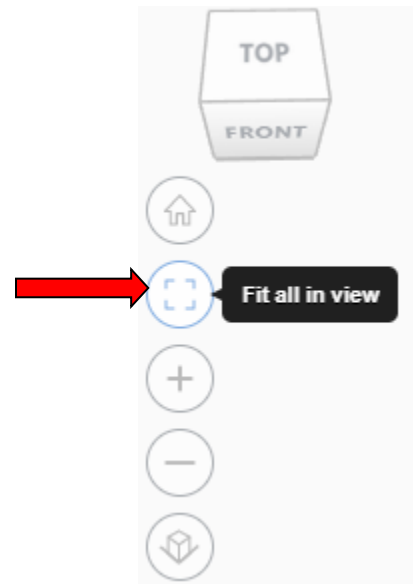
Zoom in:

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.
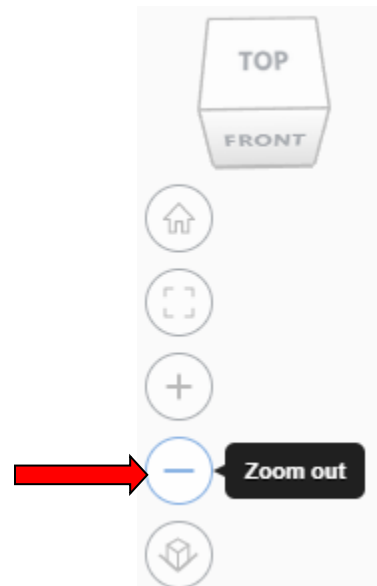
Switching to orthographic and perspective view:

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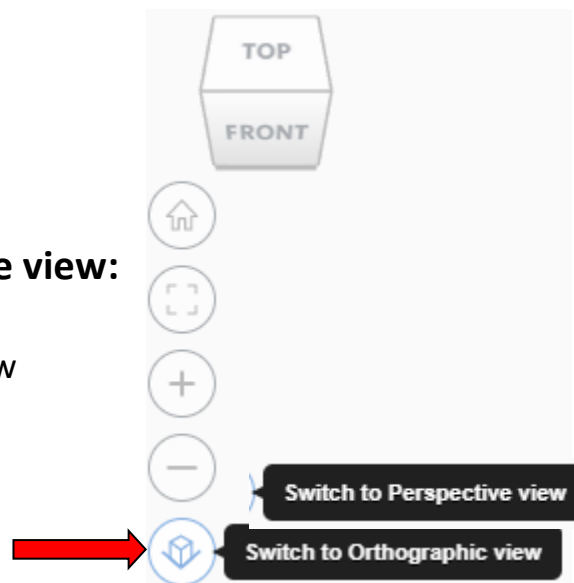
Group:

To combine two or more objects into one object.

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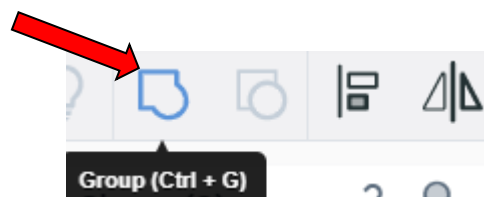
Ungroup:

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)

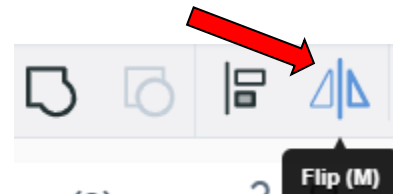|	
Duplicate dragged object(s)	Alt + Drag left mouse button
Select multiple object(s)	Shift + Left mouse button
45° rotation	Shift (Hold while rotating)
Scale in one direction	Alt + Hold side handle
Scale in two directions	Alt + Hold corner handle
Uniform scale	Shift + Hold corner handle
Uniform scale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