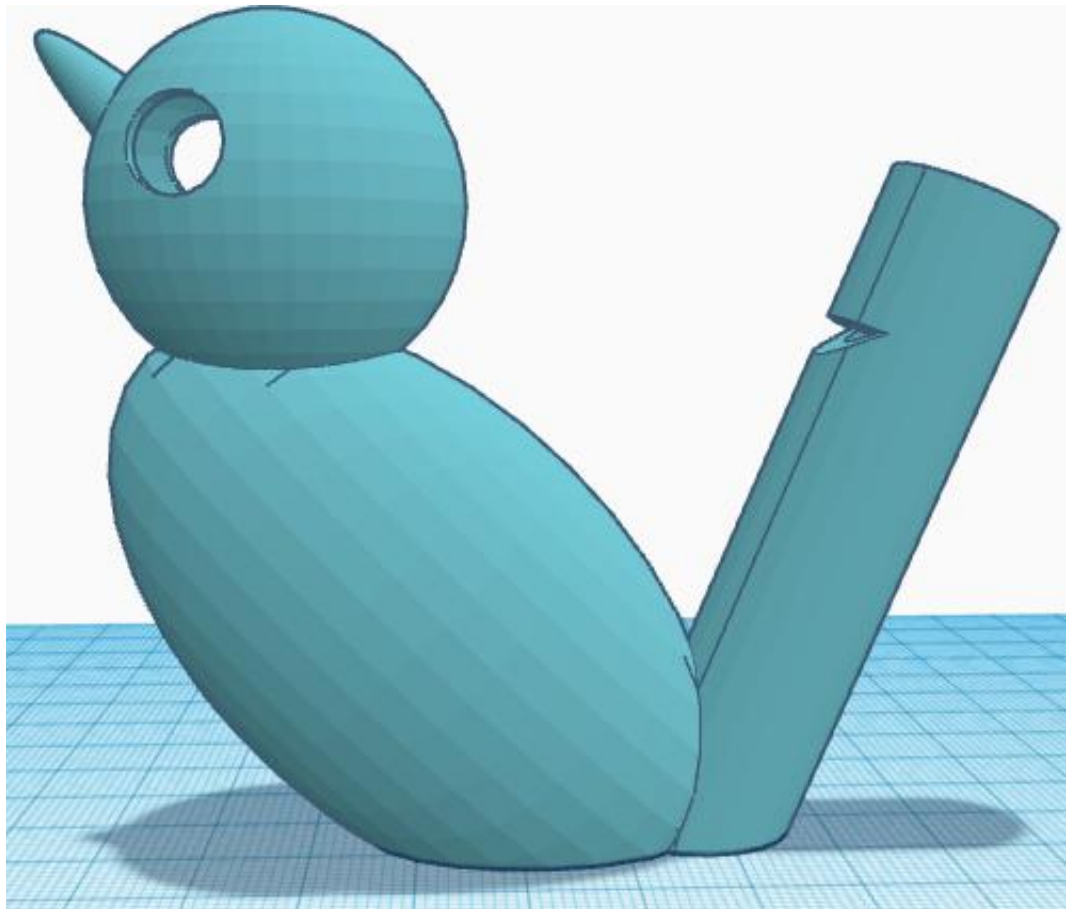




Bird Whistle Project

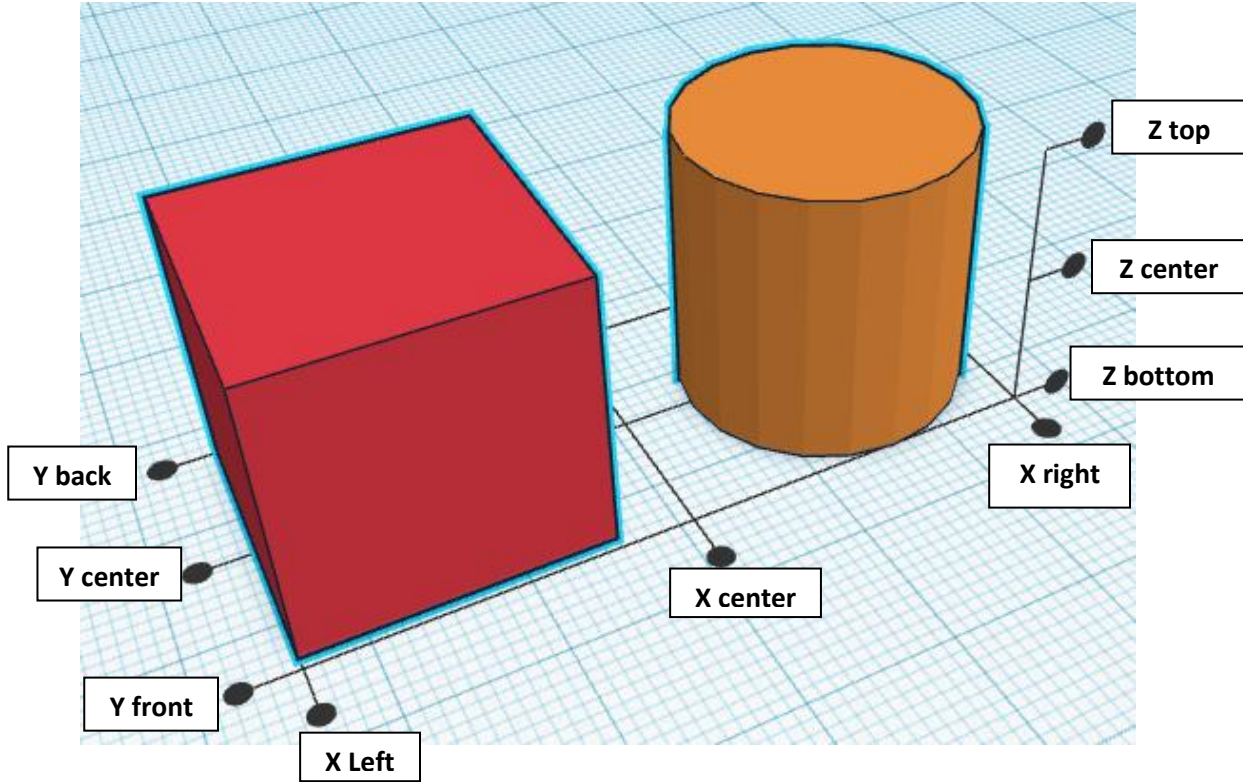


Reference to Aligning, Flip direction, Move direction, and Rotate direction.

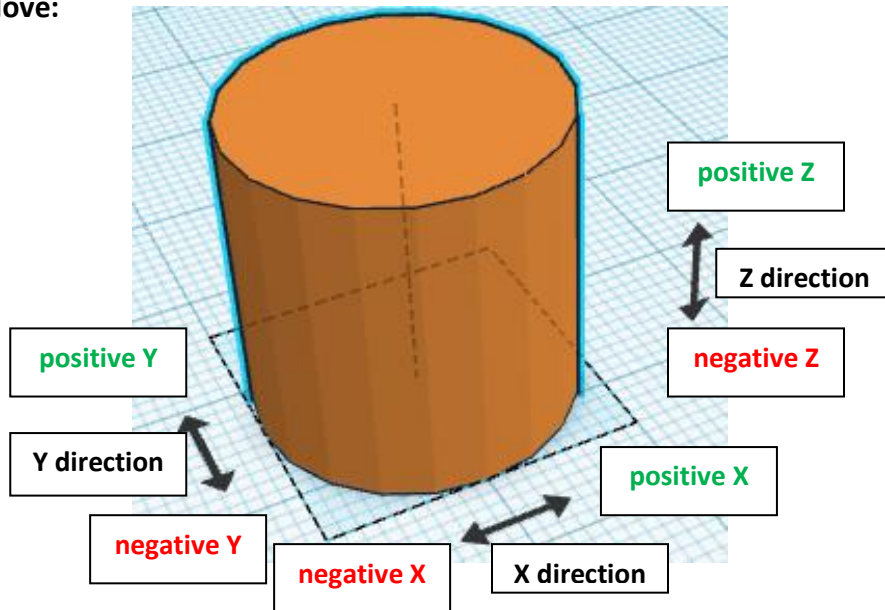
Always be in the "home view" when doing any of these!!!



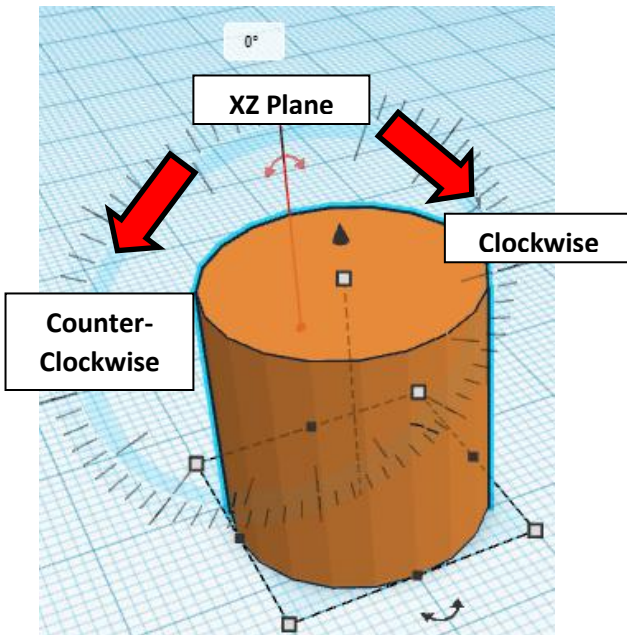
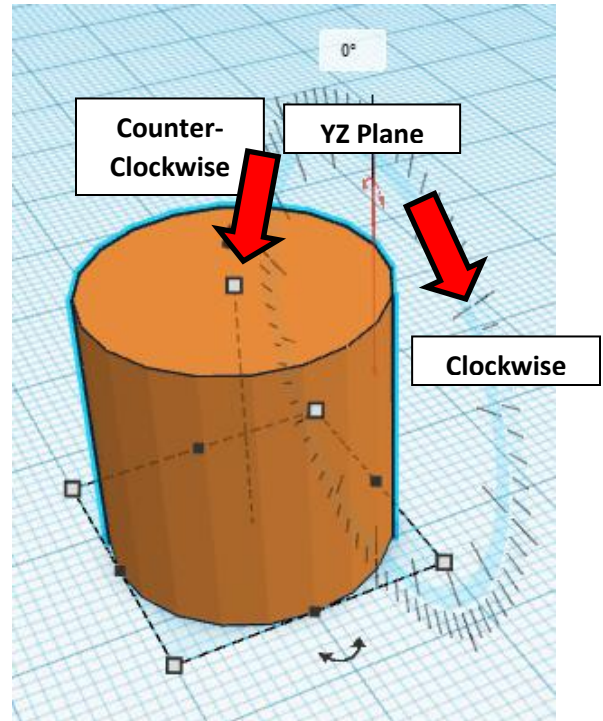
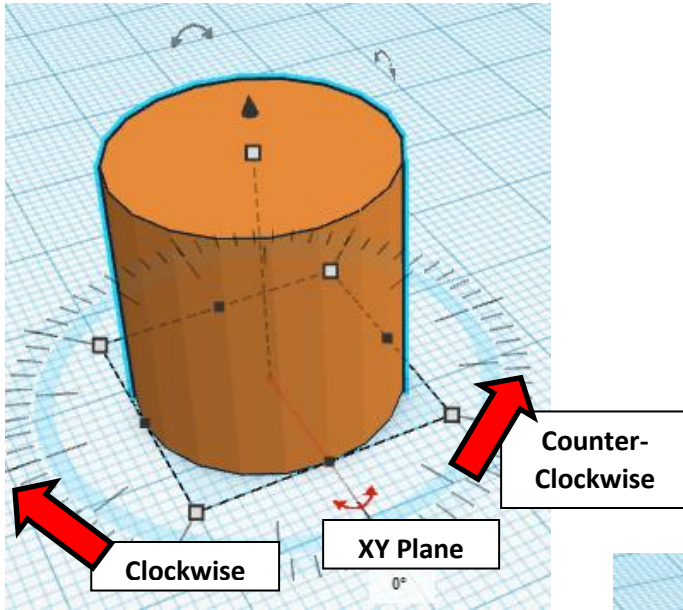
Aligning:



Flip or Mirror and Move:



Rotate:

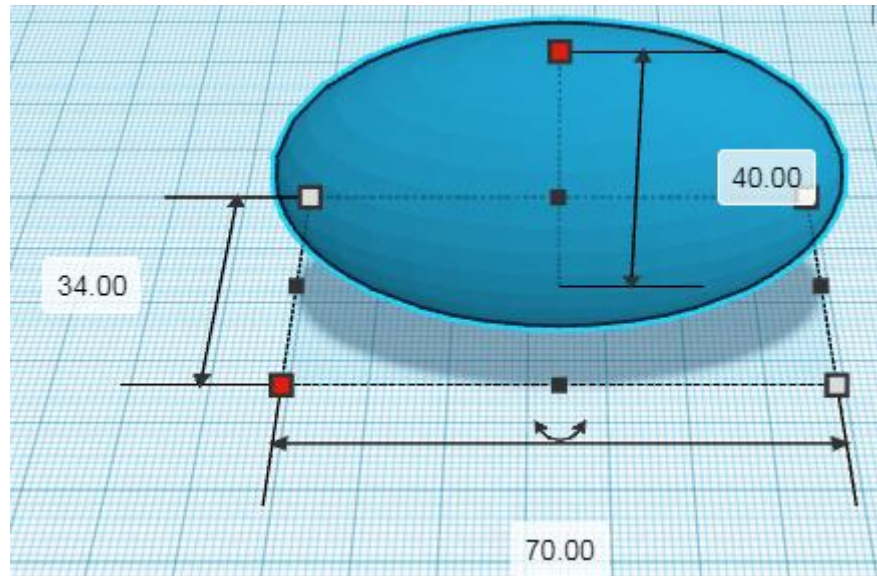


Bird Whistle:

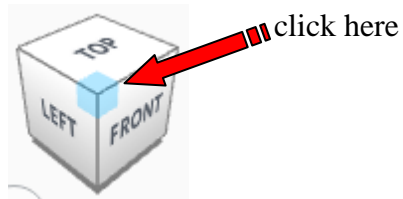
Body:

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

Change the dimensions to
70mm X direction,
34mm Y direction, and
40mm Z direction.

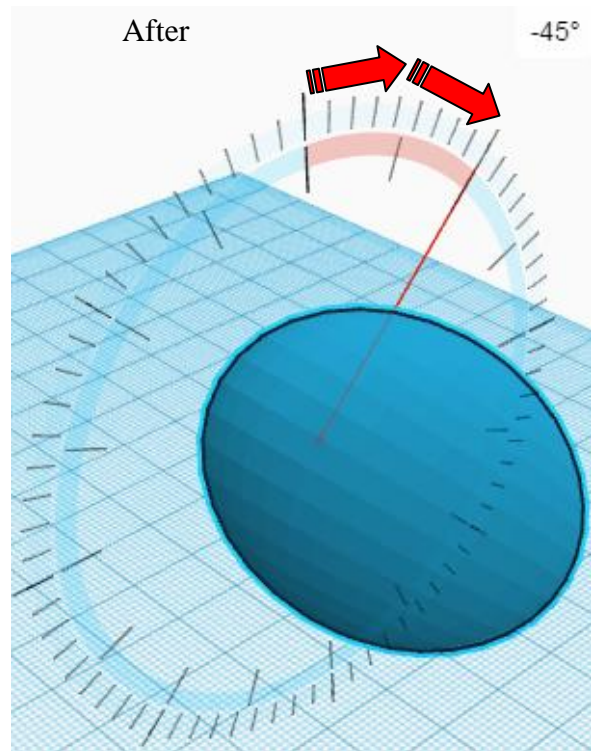
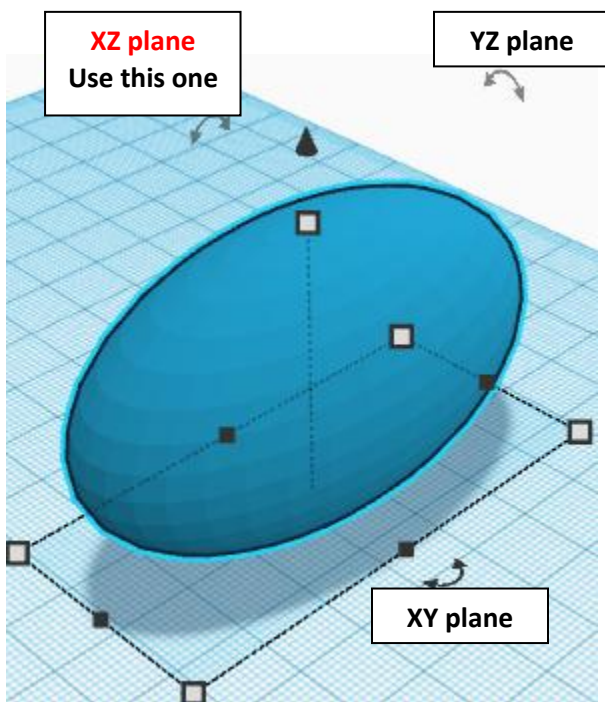


Go to TOP LEFT FRONT view for rotations



Rotate the Body clockwise 45 degrees in XZ plane.

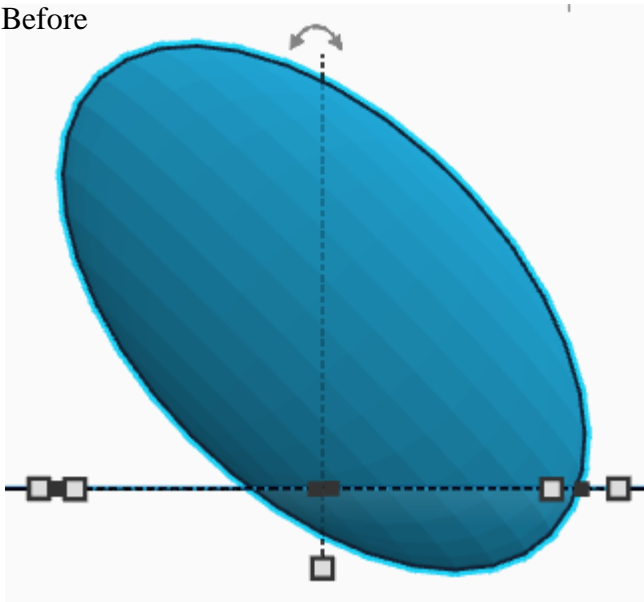
Before



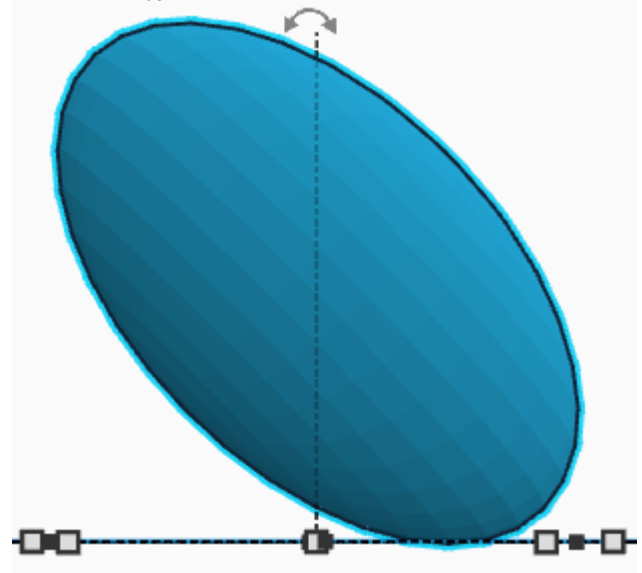
Set on Workplane:

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

Before



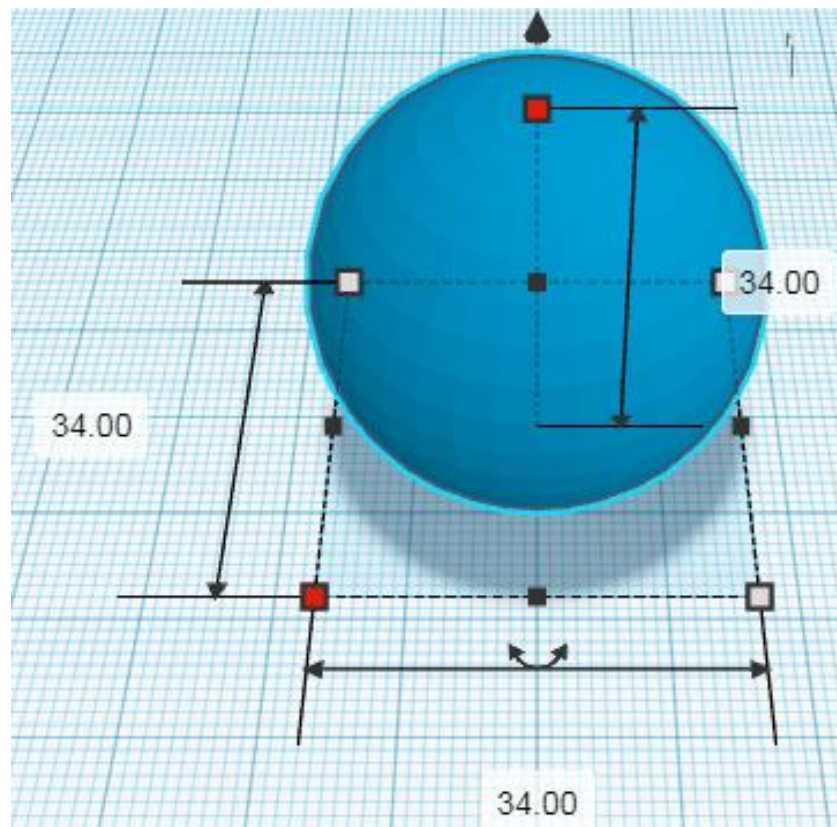
After



Head:

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

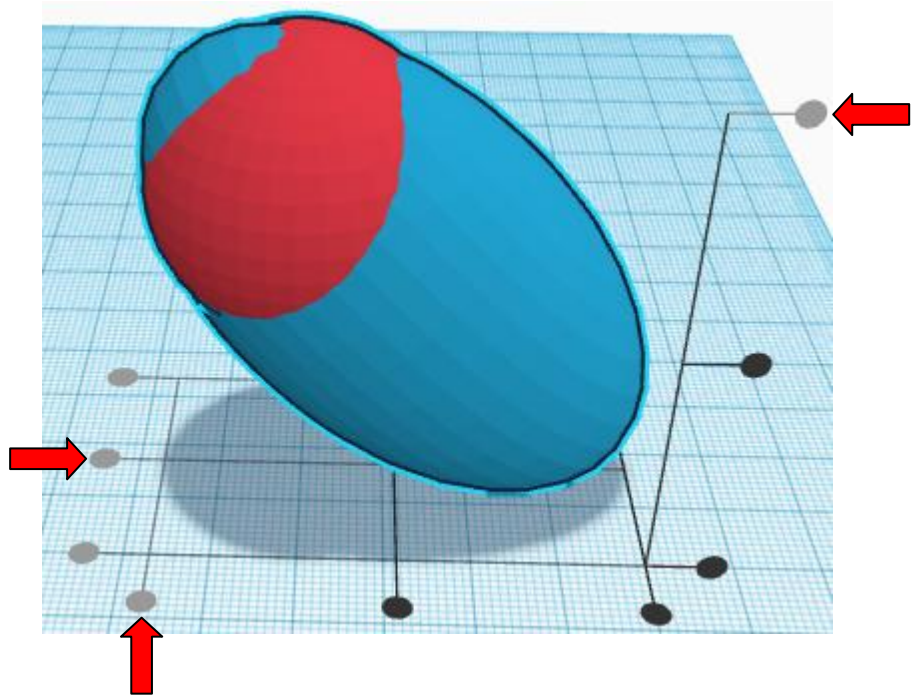
Change the dimensions to 34mm X direction, 34mm Y direction, and 34mm Z direction.



Before I align the head and body I am going to change the color on the head to red to better identify what part is the head and what part is the body.

Align Head and Body

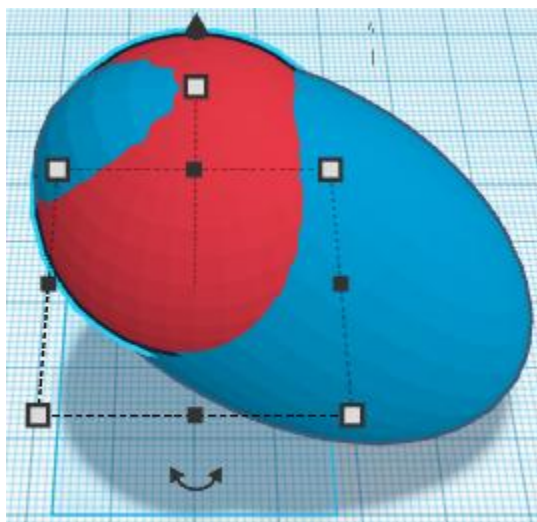
left in X direction,
centered of Y direction, and
top of Z direction.



Move Head (Must be in home view for this to work!)
move up in positive Z direction 27mm
and
move left in negative X direction 1mm

Hint: Select Head and hold control down and push up arrow key 27 times. Then release control button and push left once.
or
Hold down shift and control and push up arrow 2 times and release shift but still hold control down and push up arrow 7 times.
Then release the control button and push left arrow once.

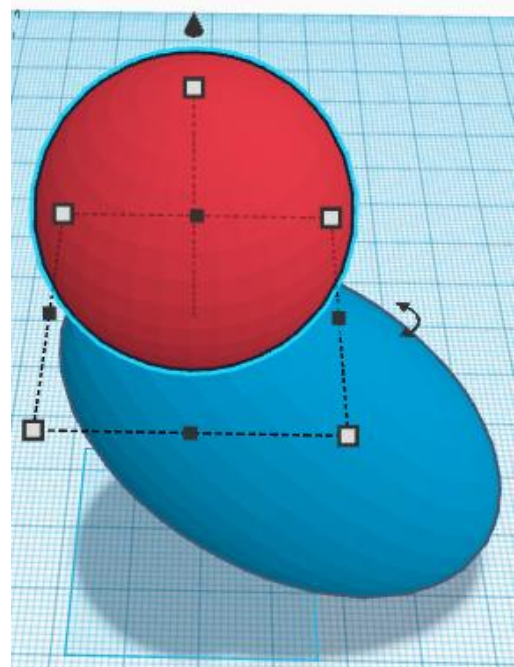
Before



27mm
up (hold control)

1mm
left

After



Group Head and Body

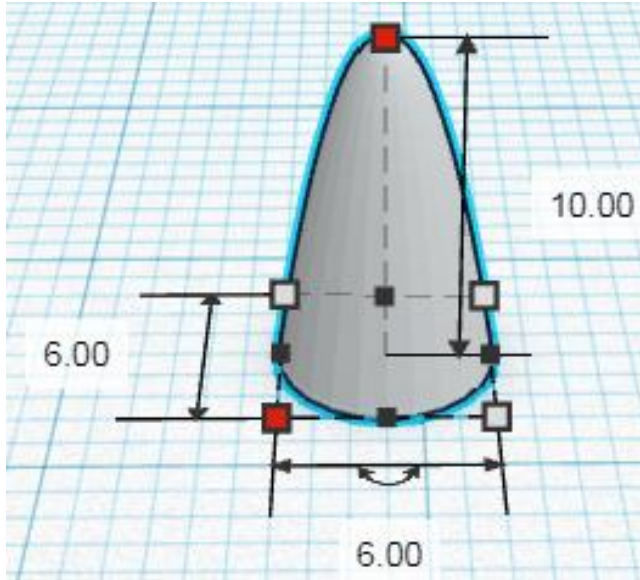
From now on this will be called the **Body**.

Beak:

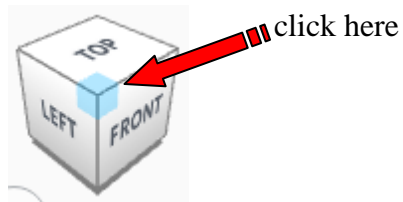
Bring in a Paraboloid, located in Basic Shapes on the left 8 shapes down.

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

Change the dimensions to
6mm X direction,
6mm Y direction, and
10mm Z direction.

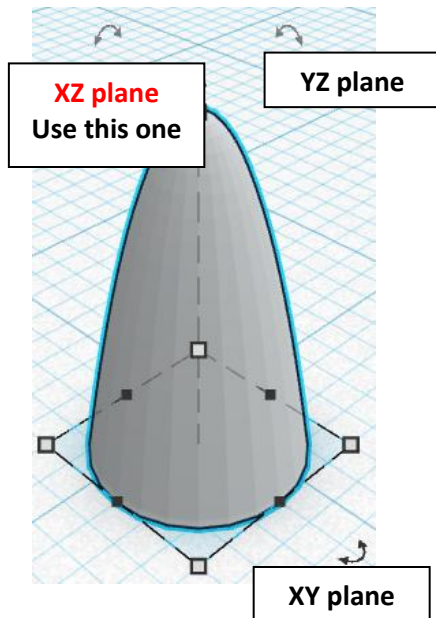


Go to TOP LEFT FRONT view for rotations

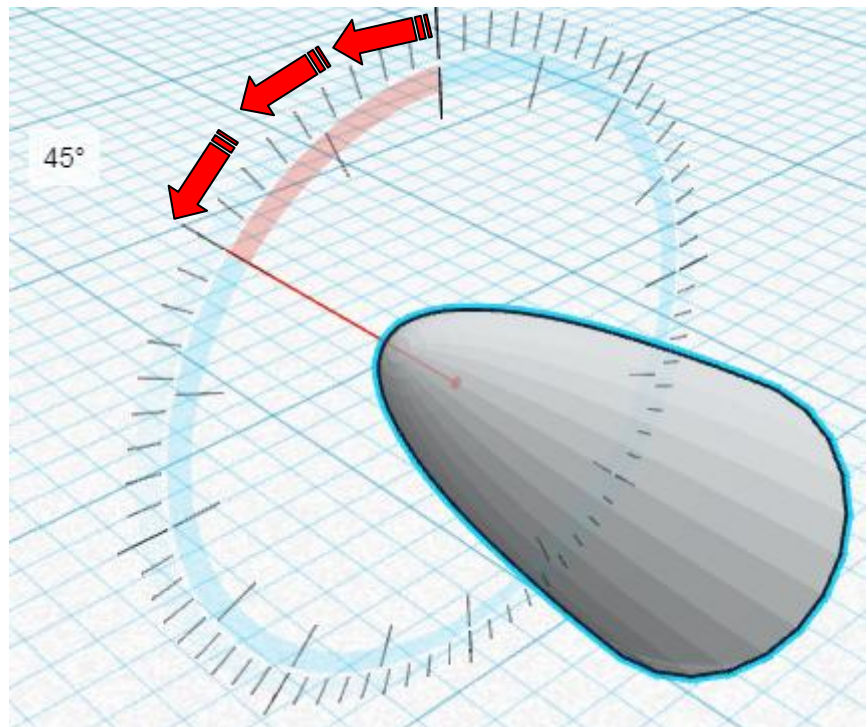


Rotate the Beak counter-clockwise 45 degrees in XZ plane.

Before

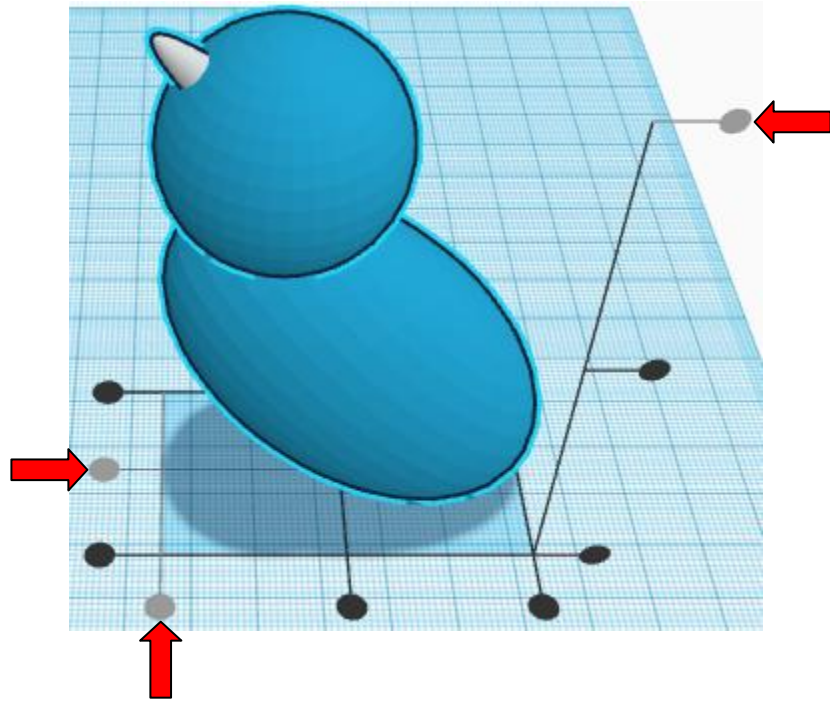


After



Align Beak and Body

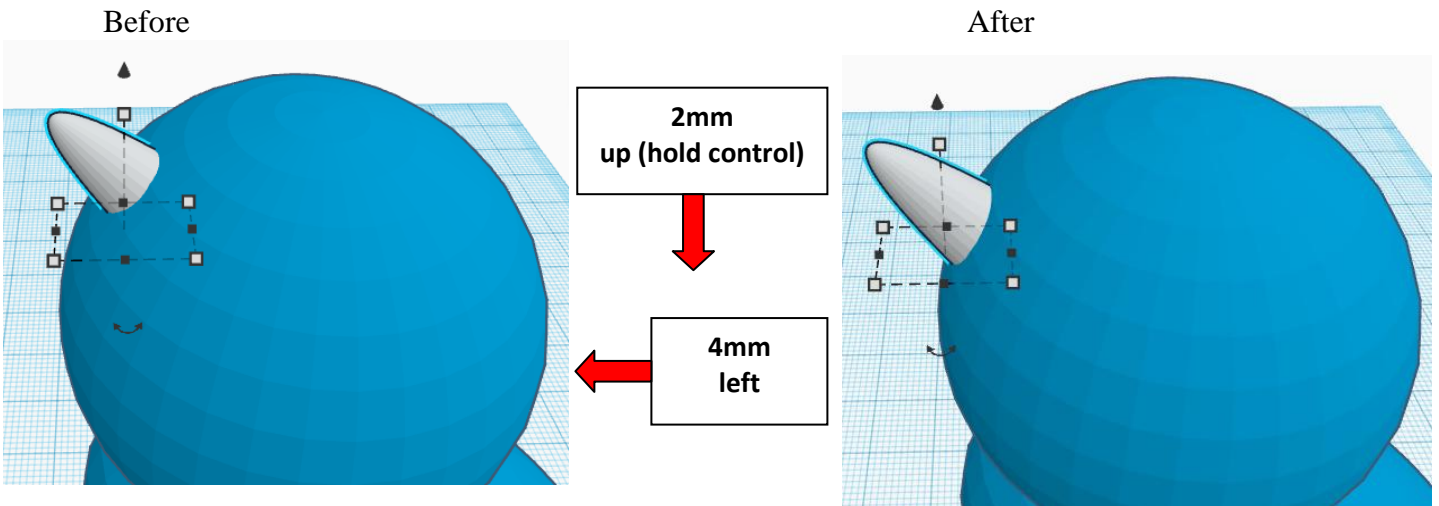
left in X direction,
centered of Y direction, and
top of Z direction.



Move Beak (Must be in home view for this to work!)

move down in negative Z direction 2mm
and
move left in negative X direction 4mm

Hint: Select Beak and hold control down and push down arrow key 2 times. Then release control button and push left arrow key 4 times.



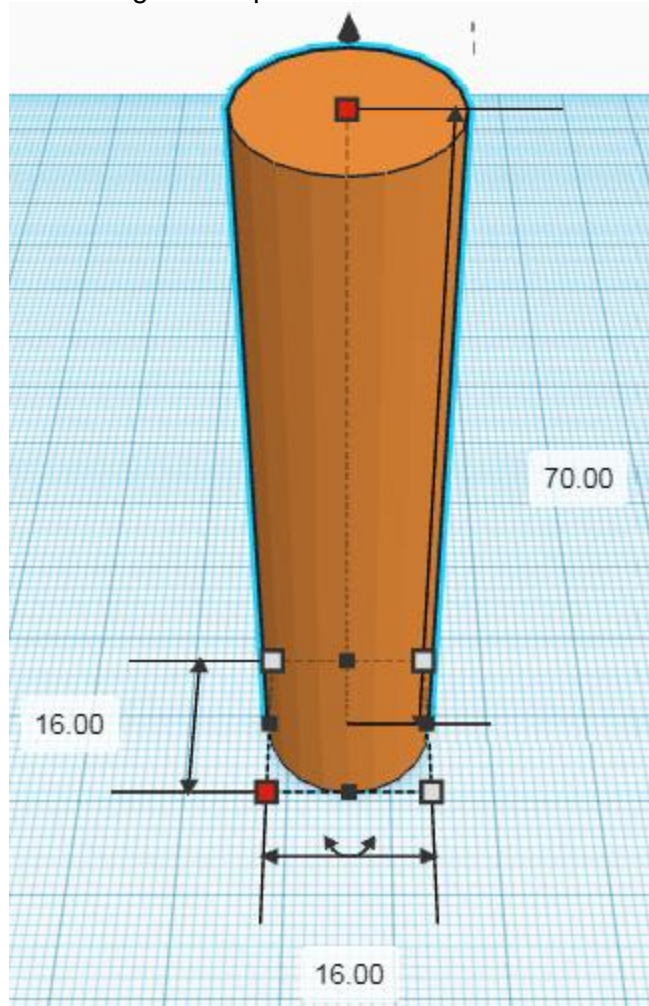
Group Beak and Body

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

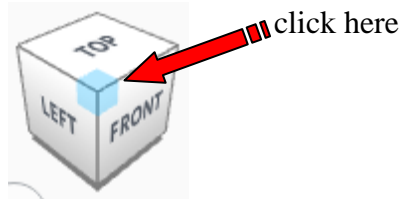
Tail:

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

Change the dimensions to
16mm X direction,
16mm Y direction, and
70mm Z direction.

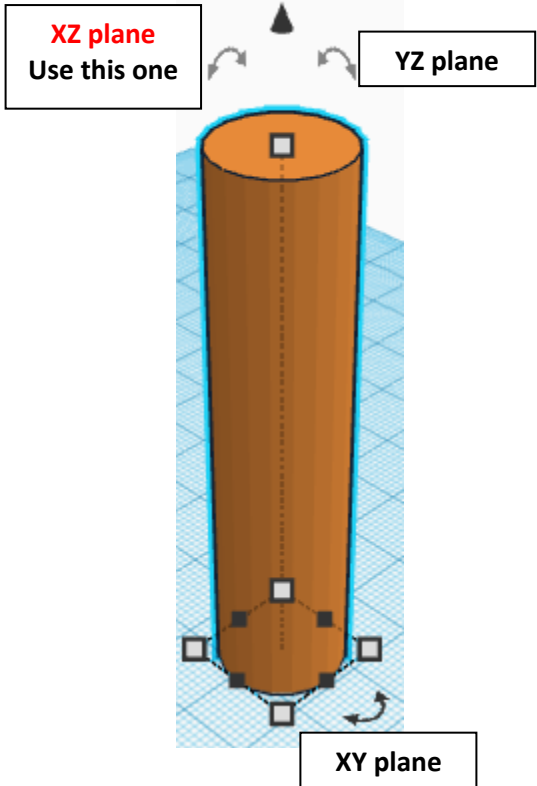


Go to TOP LEFT FRONT view for rotations

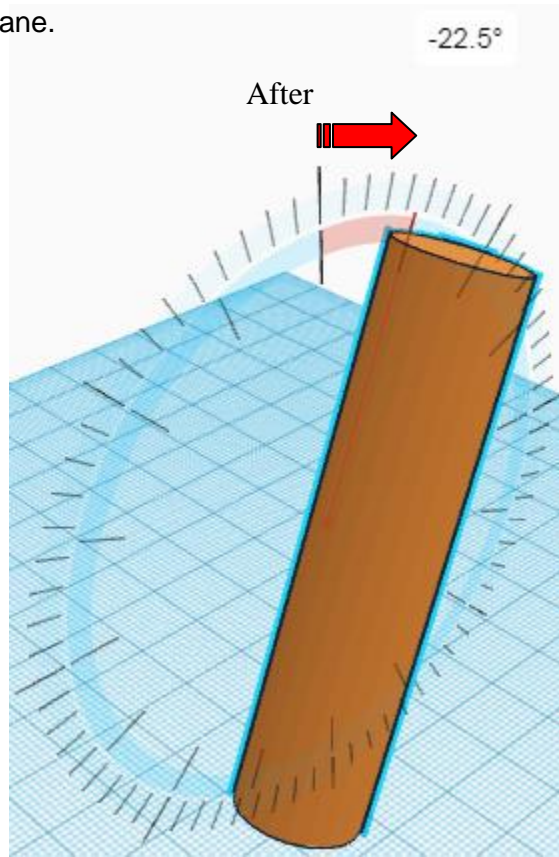


Rotate the Tail clockwise 22.5 degrees in XZ plane.

Before

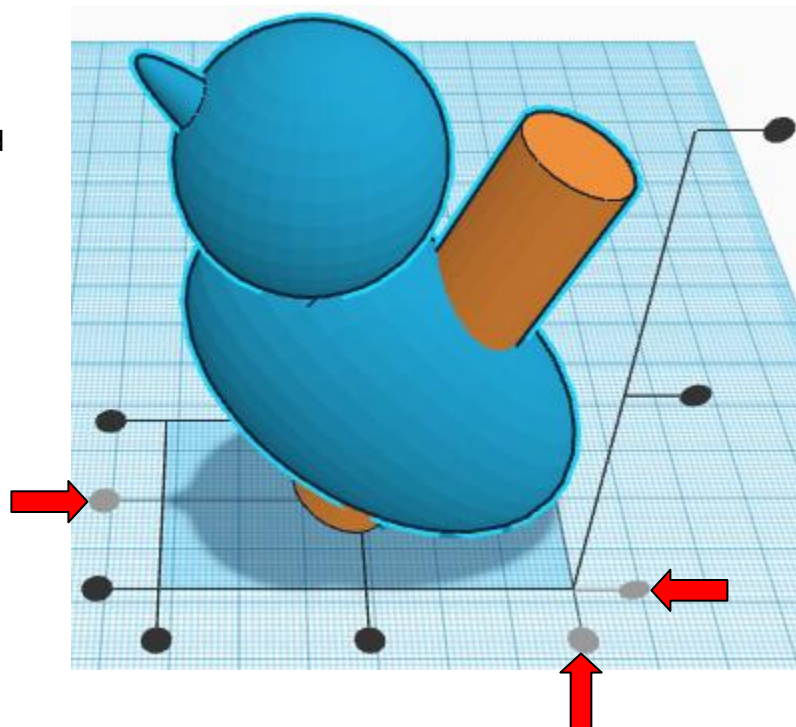


After



Align Tail and Body

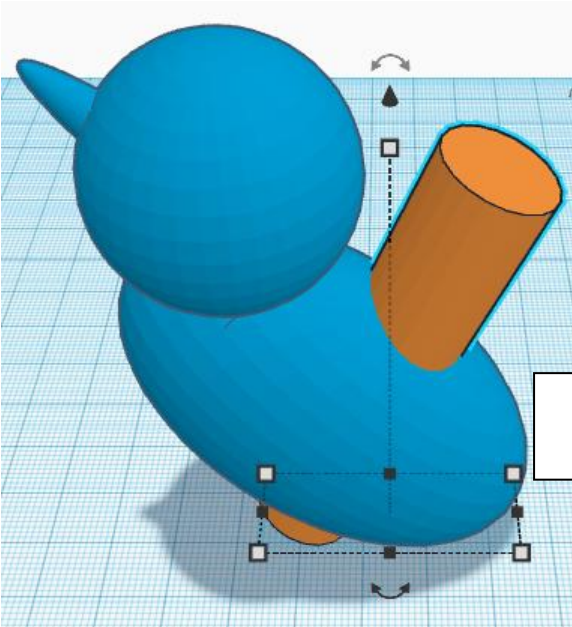
right in X direction,
centered of Y direction, and
bottom of Z direction.



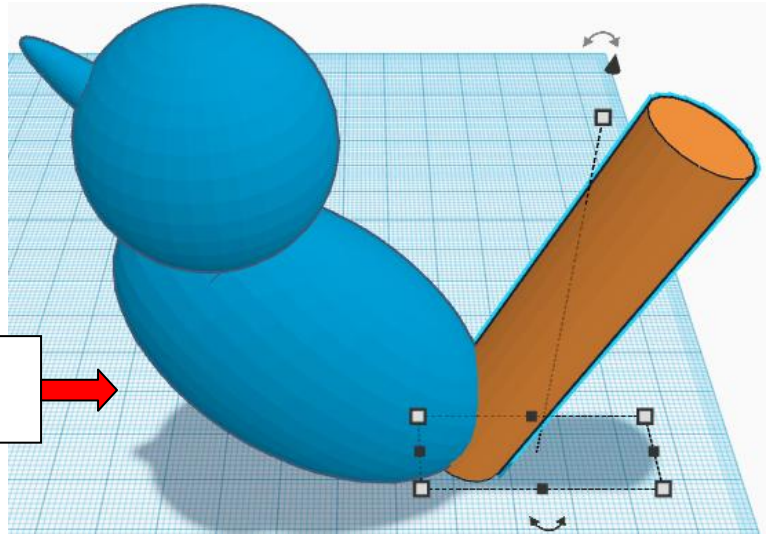
Move Tail (Must be in home view for this to work!)
move right in positive X direction 31mm

Hint: Select Tail and hold shift down and push right arrow key 3 times. Then release shift button and push right arrow key 1 time.

Before



After



Group Tail and Body

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

Congratulations, you are done with the outside of the bird.

Next we will create all the holes, group them together, and move them in place to be grouped with the bird to hollow out the inside of the bird.

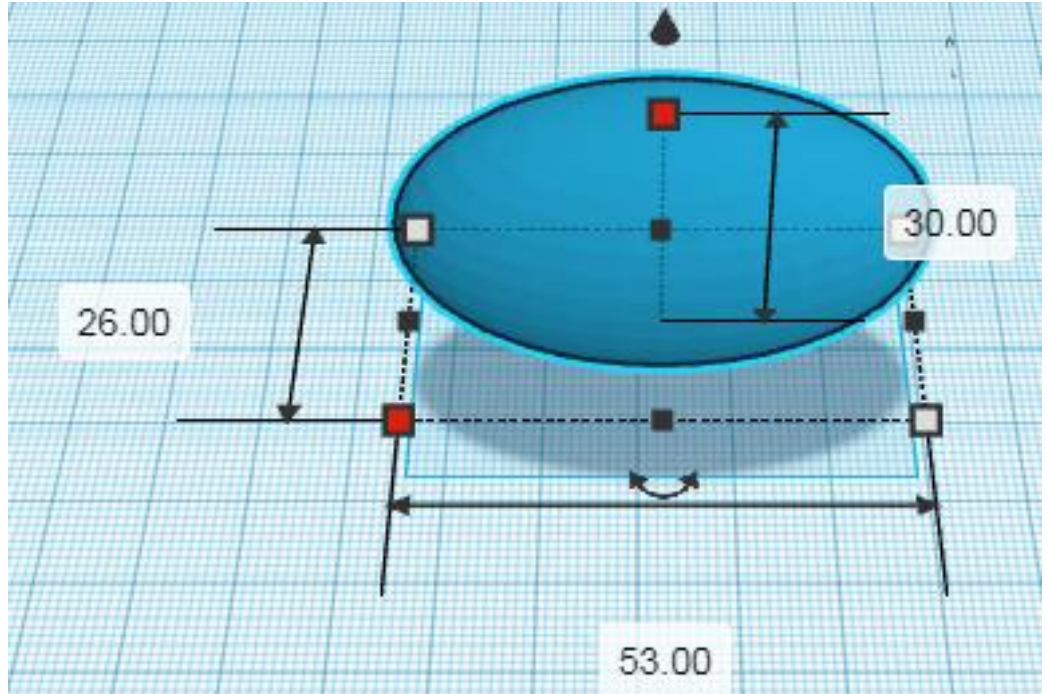
Set the bird off to the side for later use.

Inside the Bird:

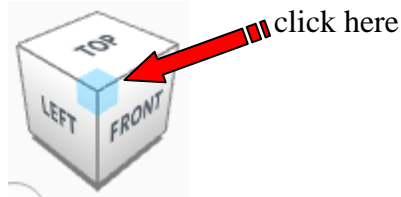
Inside Body:

Bring in a Sphere, located in Basic Shapes on the left 3 shapes down.
From now on this will be called the **Inside Body**.

Change the dimensions to
53mm X direction,
26mm Y direction, and
30mm Z direction.

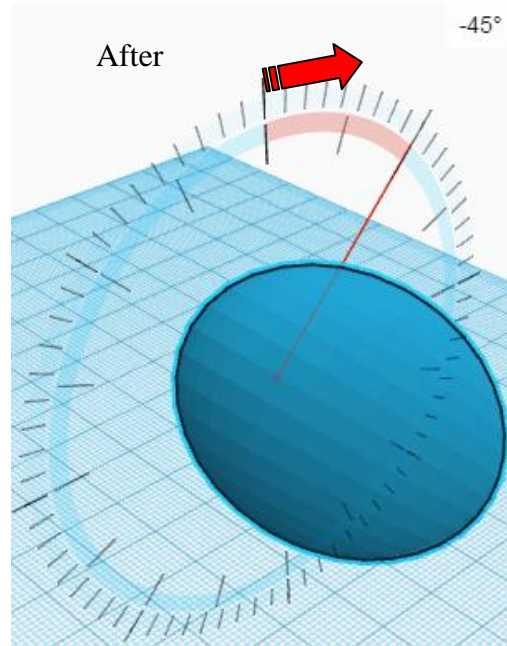
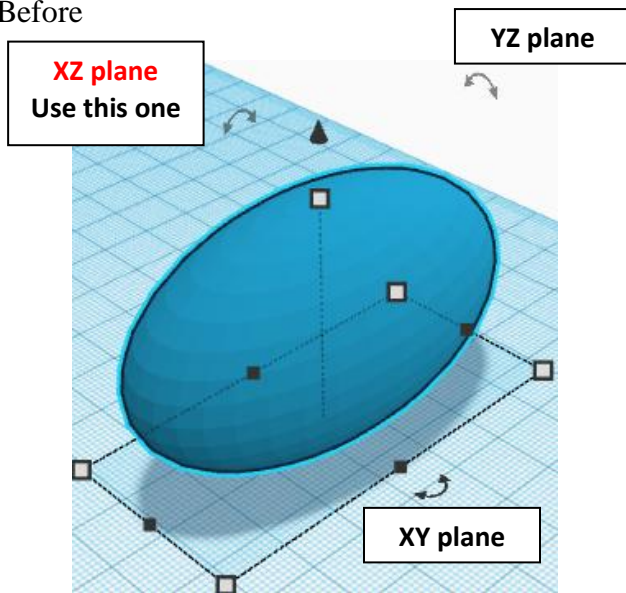


Go to TOP LEFT FRONT view for rotations



Rotate the Inside Body clockwise 45 degrees in XZ plane.

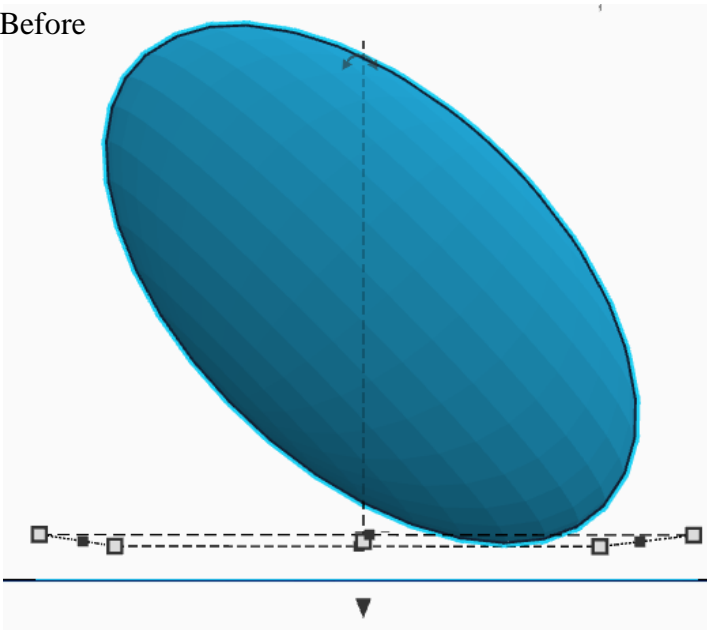
Before



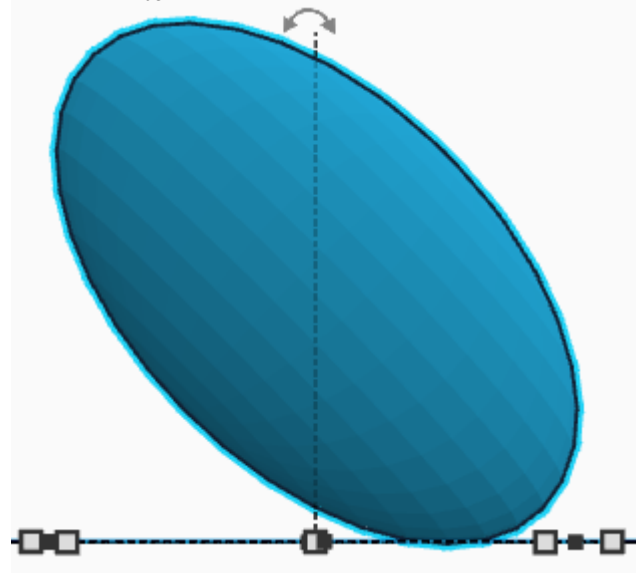
Set on Workplane:

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

Before



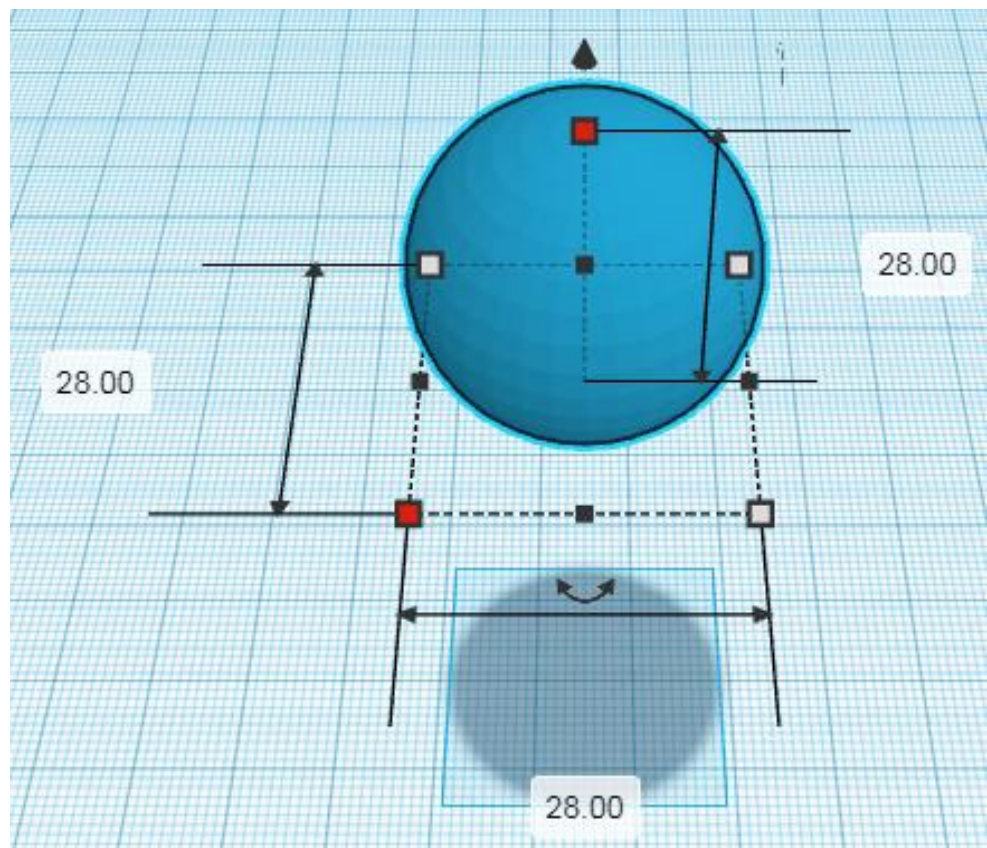
After



Inside Head:

Bring in a Sphere, located in Basic Shapes on the left 3 shapes down. From now on this will be called the **Inside Head**.

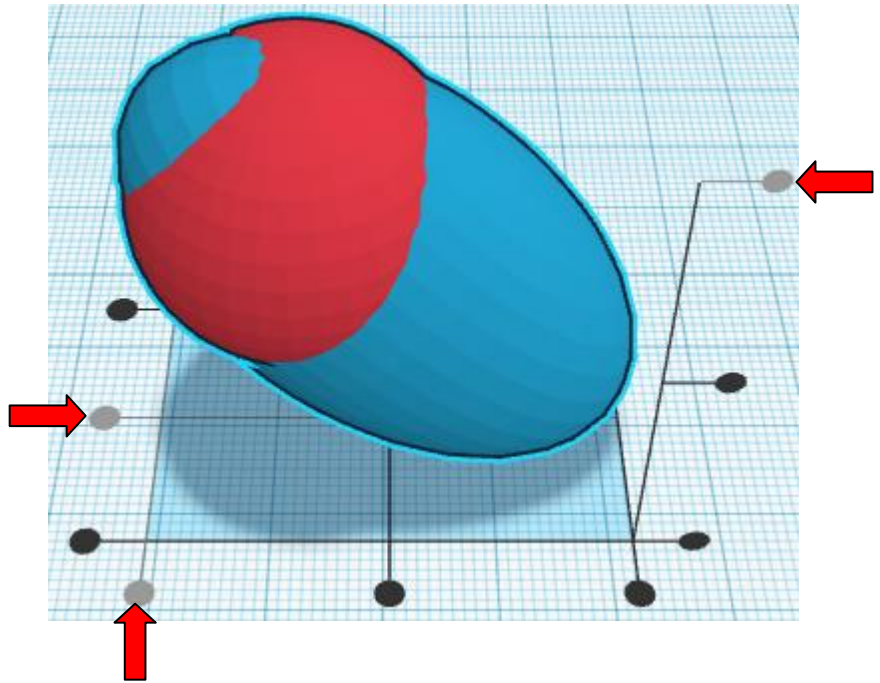
Change the dimensions to 28mm X direction, 28mm Y direction, and 28mm Z direction.



Before I align the Inside Head and Inside Body I am going to change the color on the Inside Head to red to better identify what part is the Inside Head and what part is the Inside Body.

Align Inside Head and Inside Body

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



Move Inside Head (Must be in home view for this to work!)

move up in positive Z direction 29mm
and
move left in negative X direction 4mm

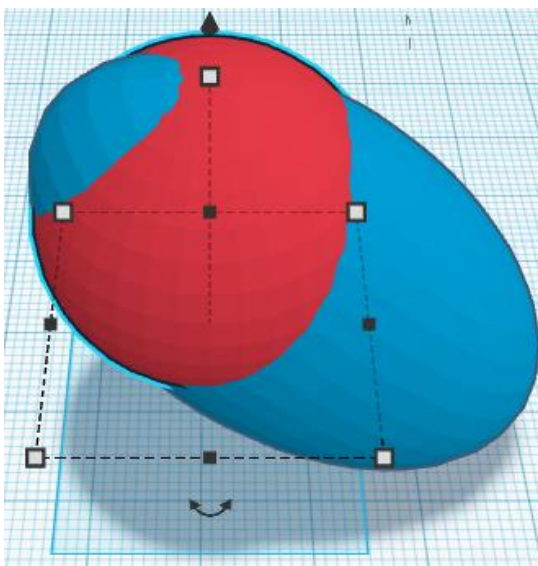
Hint: Select Inside Head and hold control down and push up arrow key 29 times. Then release control button and push left 4 times.

or

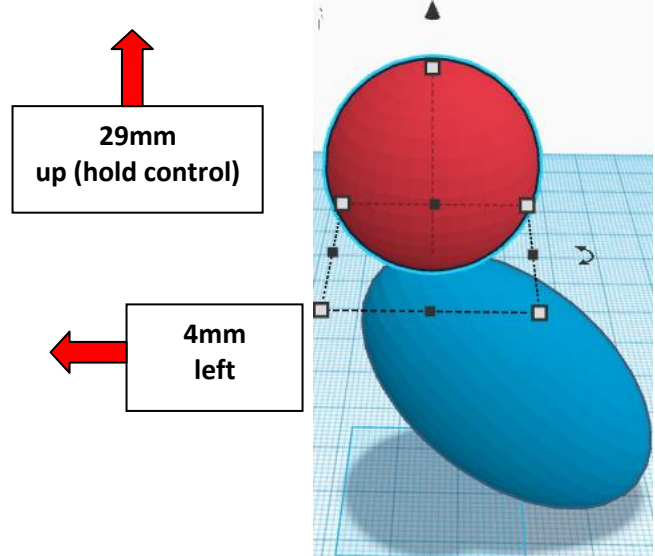
Hold down shift and control and push up arrow 2 times and release shift but still hold control down and push up arrow 9 times.

Then release the control button and push left arrow 4 times.

Before



After



Group Inside Head and Inside Body

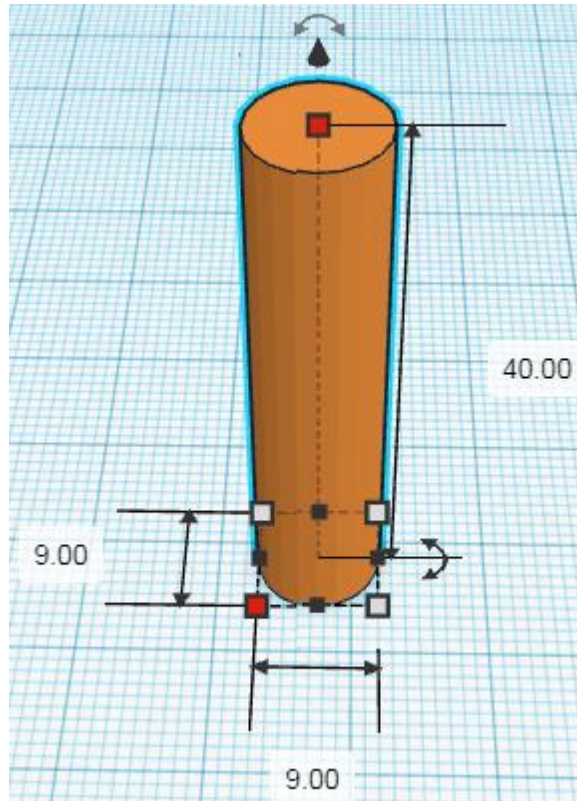
From now on this will be called the **Inside Body**.

Eyes:

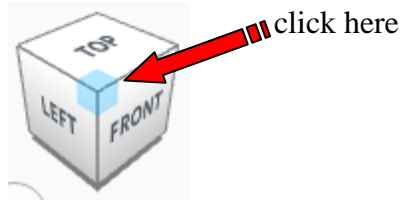
Bring in a Cylinder, located in Basic Shapes on the right 2 shapes down.

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

Change the dimensions to
9mm X direction,
9mm Y direction, and
40mm Z direction.

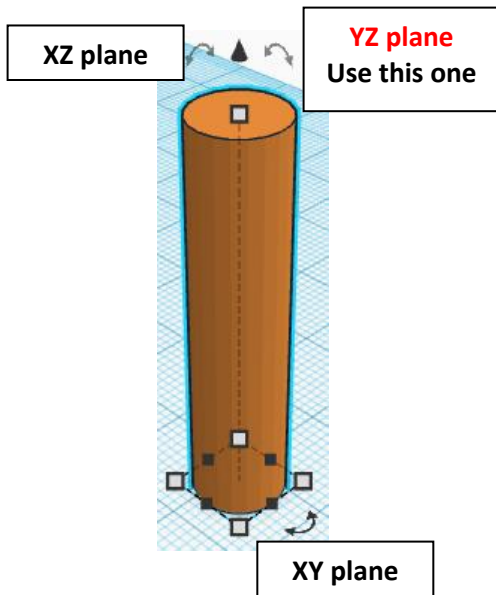


Go to TOP LEFT FRONT view for rotations

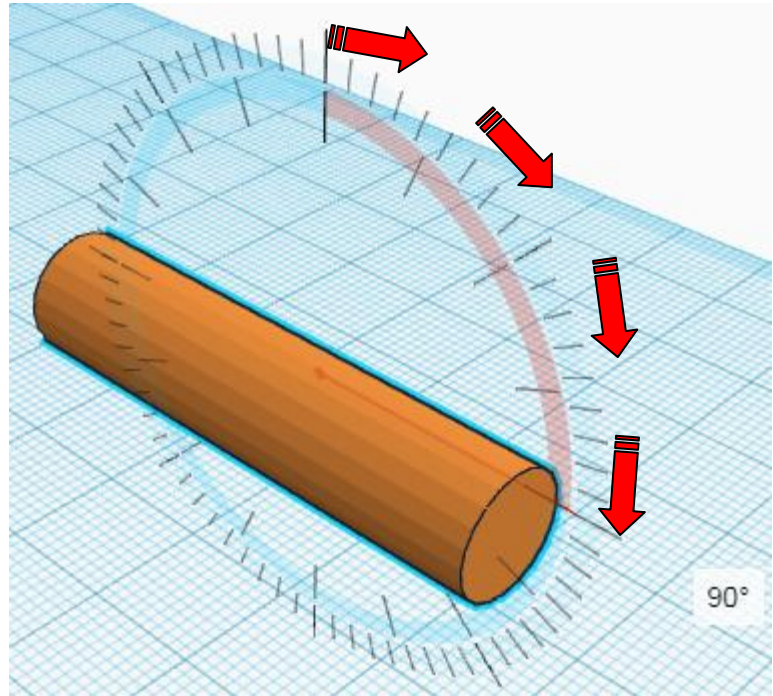


Rotate the Eyes clockwise 90 degrees in YZ plane.

Before



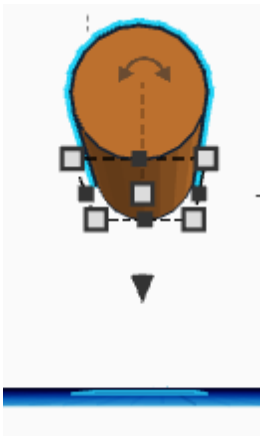
After



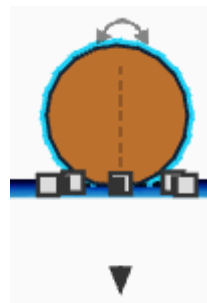
Set on Workplane:

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

Before

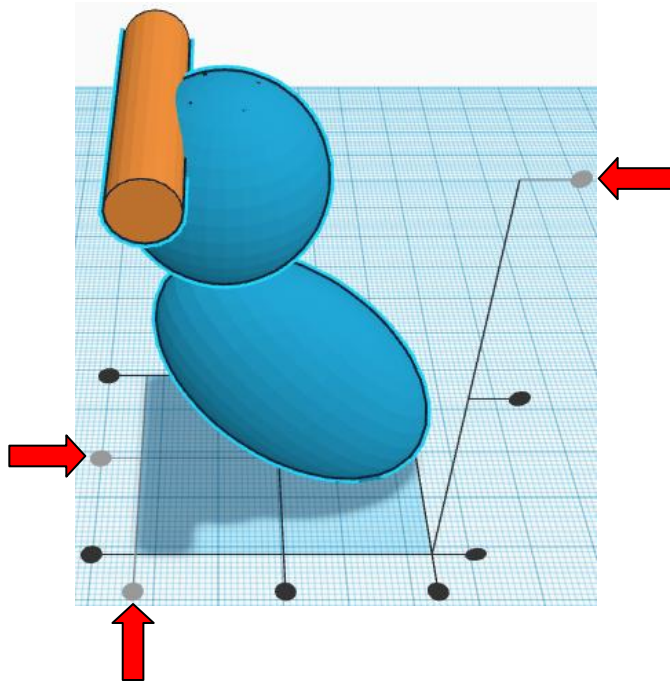


After



Align Eyes and Inside Body

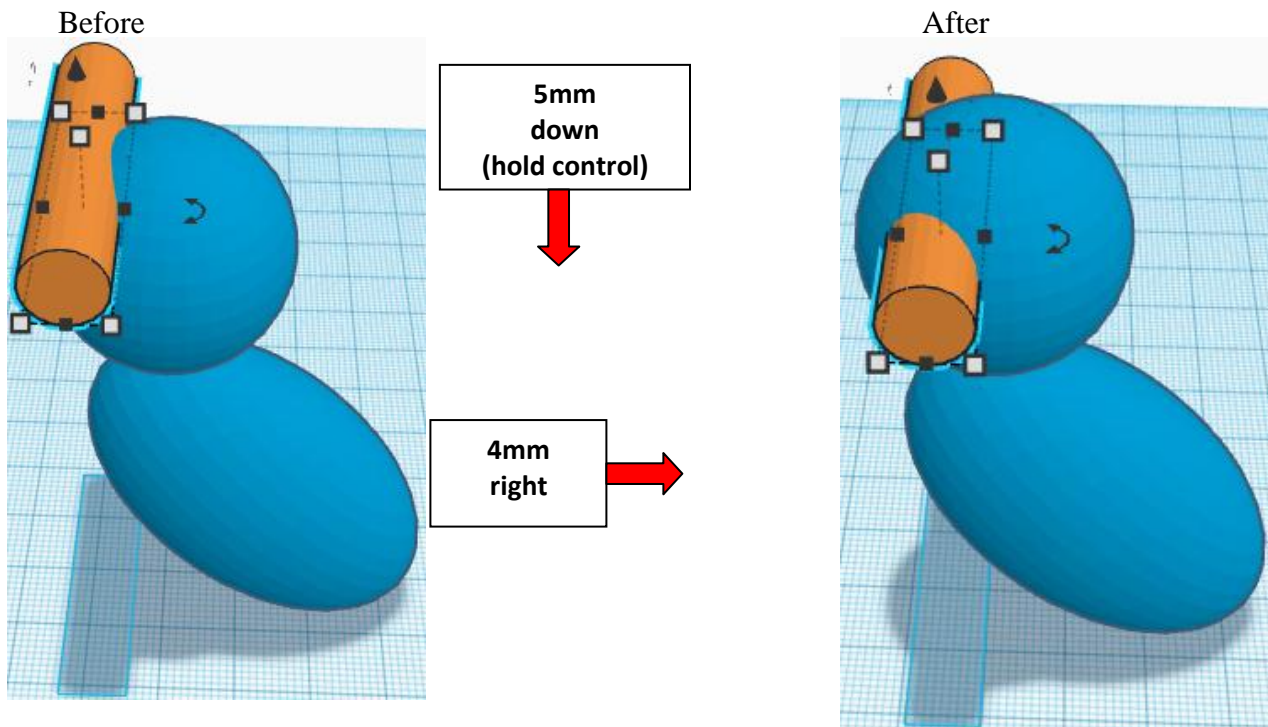
left in X direction,
centered of Y direction, and
top of Z direction.



Move Eyes (Must be in home view for this to work!)

move down in negative Z direction 5mm
and
move right in positive X direction 4mm

Hint: Select Eyes and hold control down and push down arrow key 5 times. Then release control button and push right 4 times.



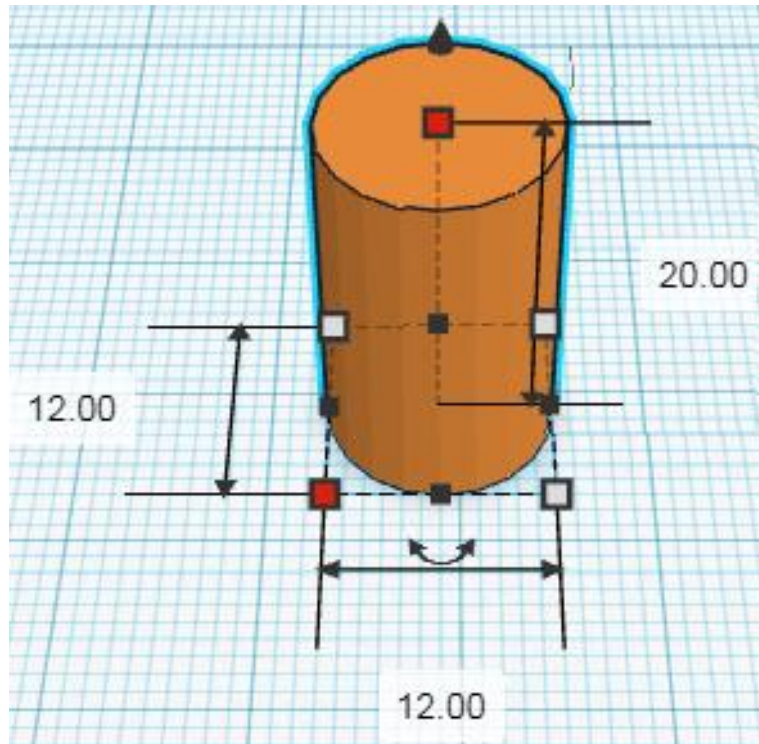
Group Eyes and Inside Body

From now on this will be called the **Inside Body**.

Neck:

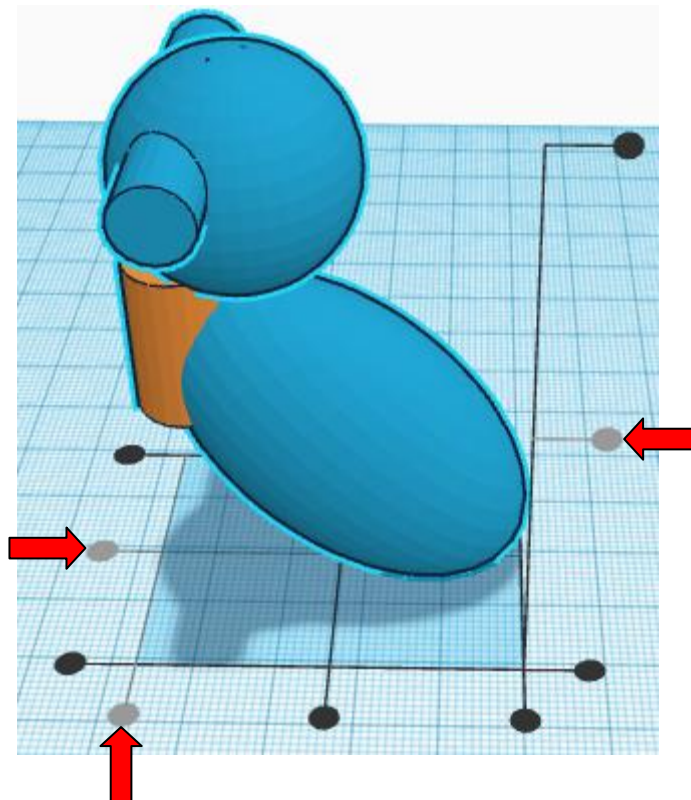
Bring in a Cylinder, located in Basic Shapes on the right 2 shapes down.
From now on this will be called the **Neck**.

Change the dimensions to
12mm X direction,
12mm Y direction, and
20mm Z direction.



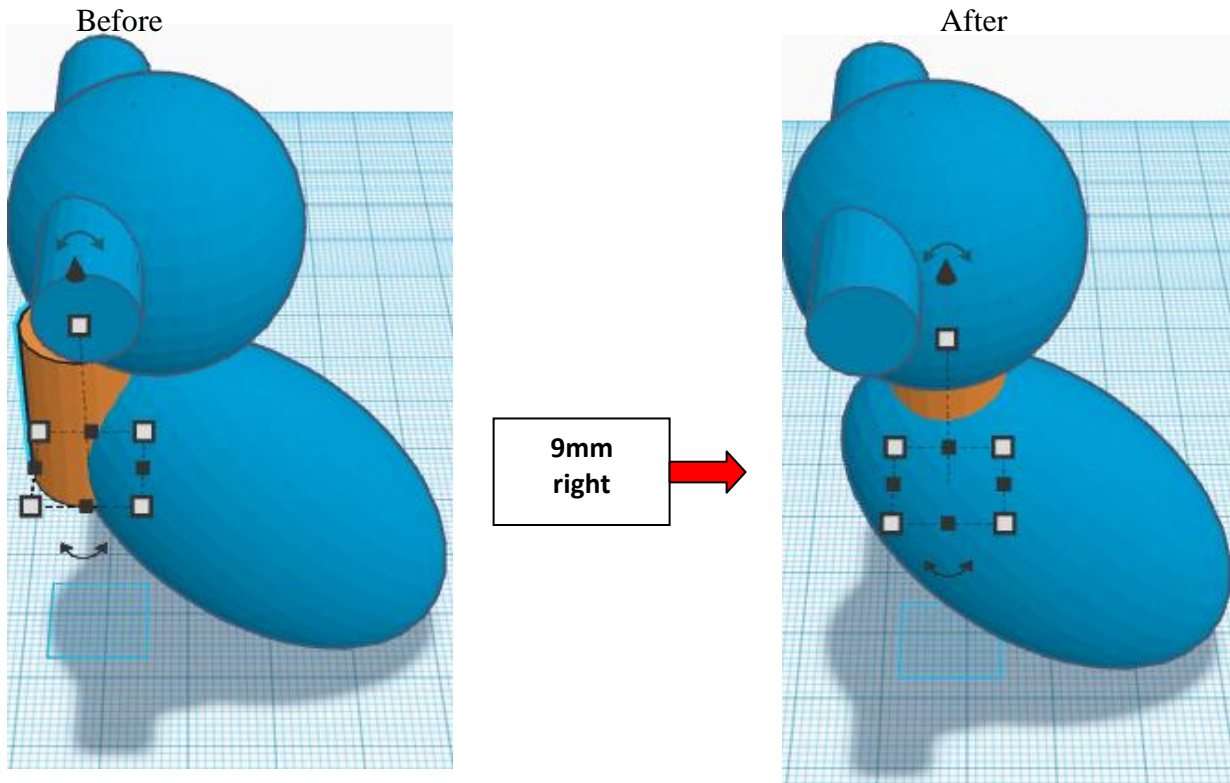
Align Neck and Inside Body

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



Move Neck (Must be in home view for this to work!)
move right in positive X direction 9mm

Hint: Select Neck and push right arrow key 9 times.

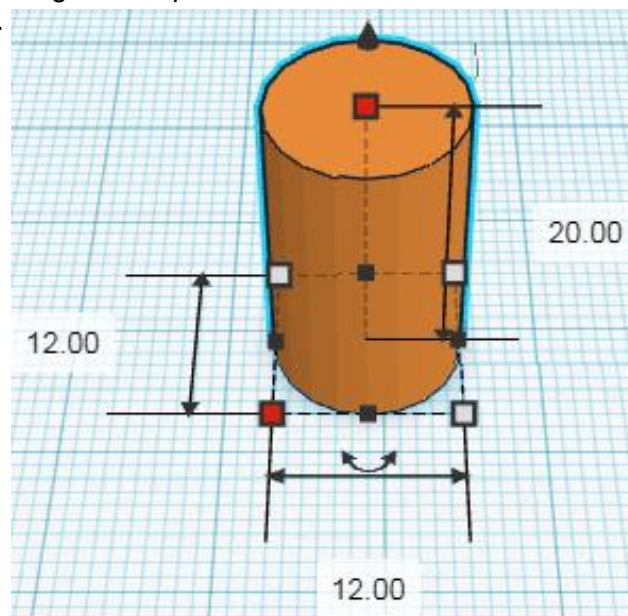


Group Neck and Inside Body
From now on this will be called the **Inside Body**.

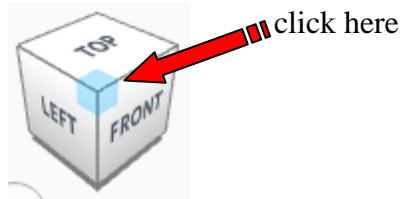
Tail Support:

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

Change the dimensions to
12mm X direction,
12mm Y direction, and
20mm Z direction.

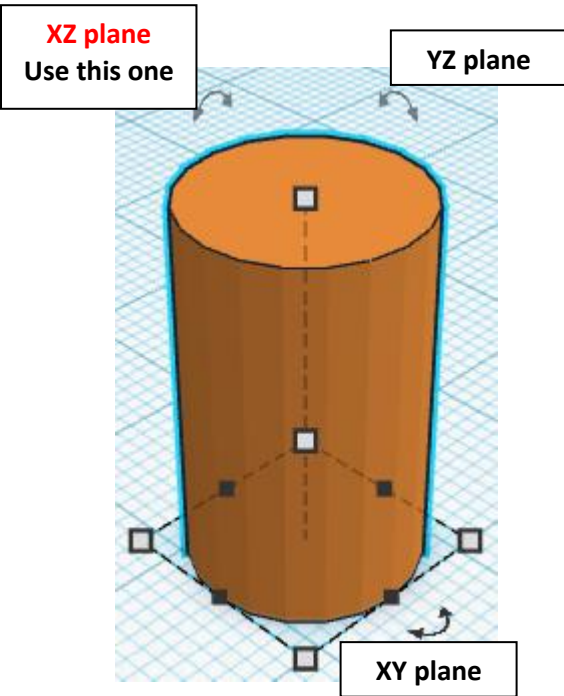


Go to TOP LEFT FRONT view for rotations

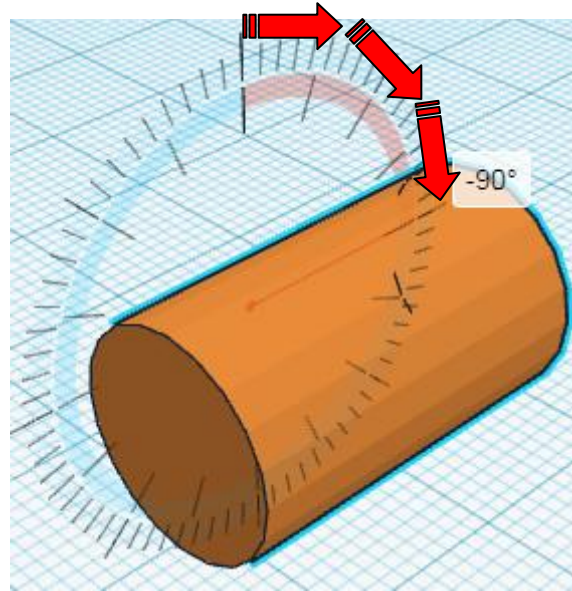


Rotate the Tail Support clockwise 90 degrees in XZ plane.

Before



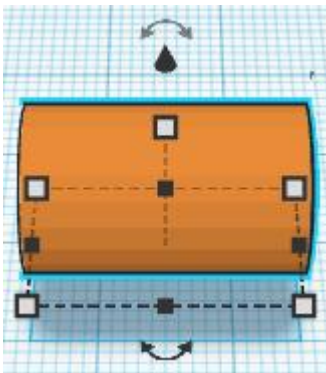
After



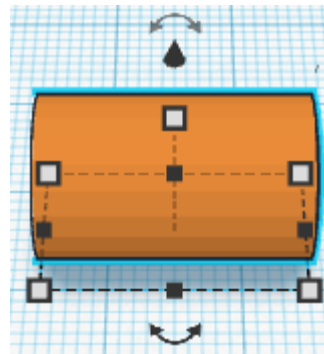
Set on Workplane:

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

Before

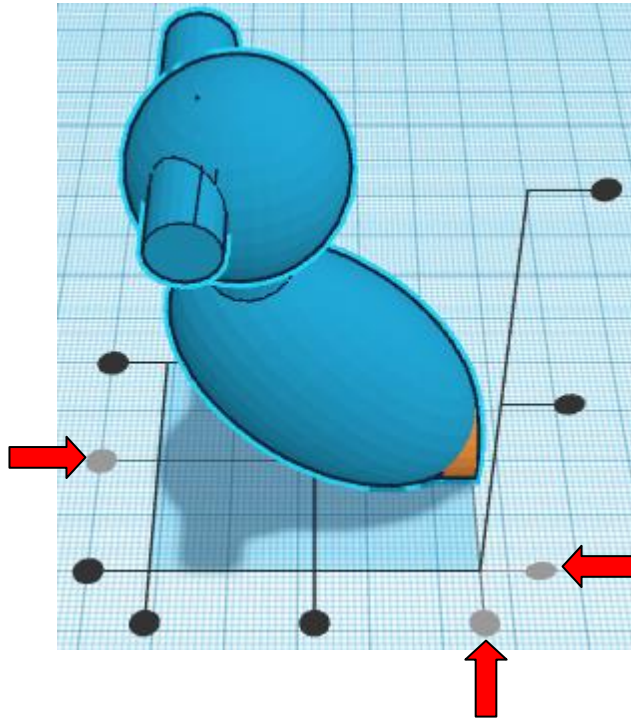


After



Align Tail Support and Inside Body

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

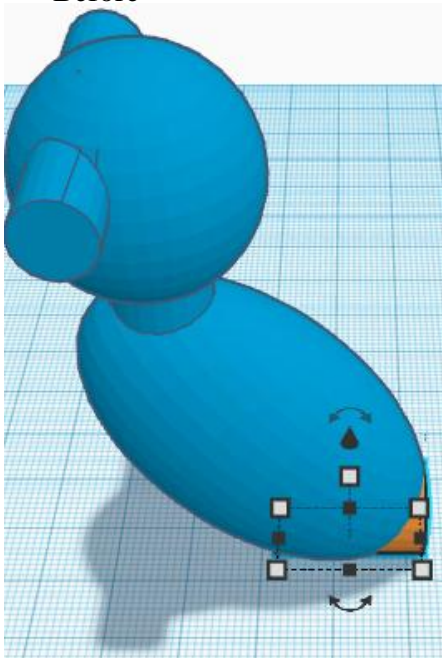


Move Tail Support (Must be in home view for this to work!)

move right in positive X direction 13mm
and
move up in positive Z direction 1mm

Hint: Select Tail Support and hold shift down and push right arrow key 1 times. Then release shift button and push right 3 times. Then hold control down and push up arrow 1 time.

Before

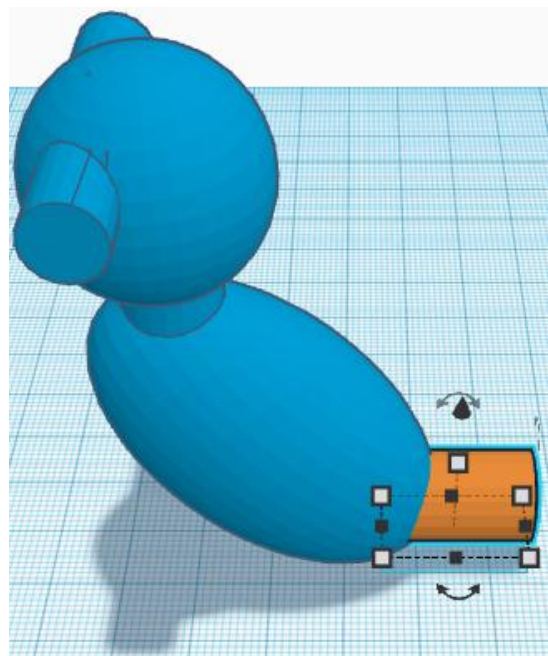


13mm
right



1mm
up
(hold control)

After



Group Tail Support and Inside Body

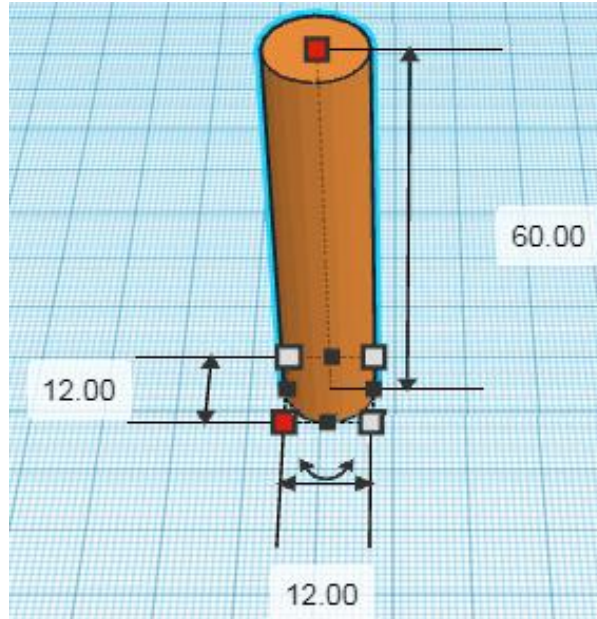
From now on this will be called the **Inside Body**.

Inside Tail:

Bring in a Cylinder, located in Basic Shapes on the right 2 shapes down.

From now on this will be called the **Inside Tail**.

Change the dimensions to
12mm X direction,
12mm Y direction, and
60mm Z direction.

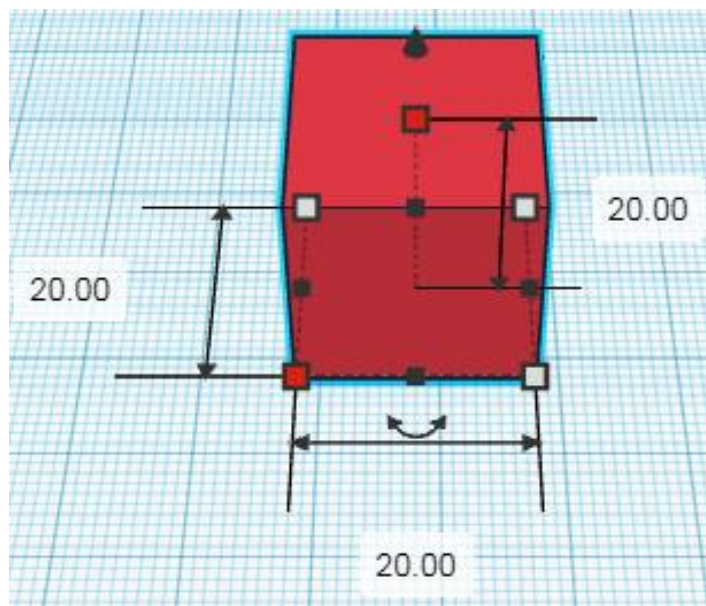


Tail Cutout:

Bring in a Box, located in Basic Shapes on the left 2 shapes down.

From now on this will be called the **Tail Cutout**.

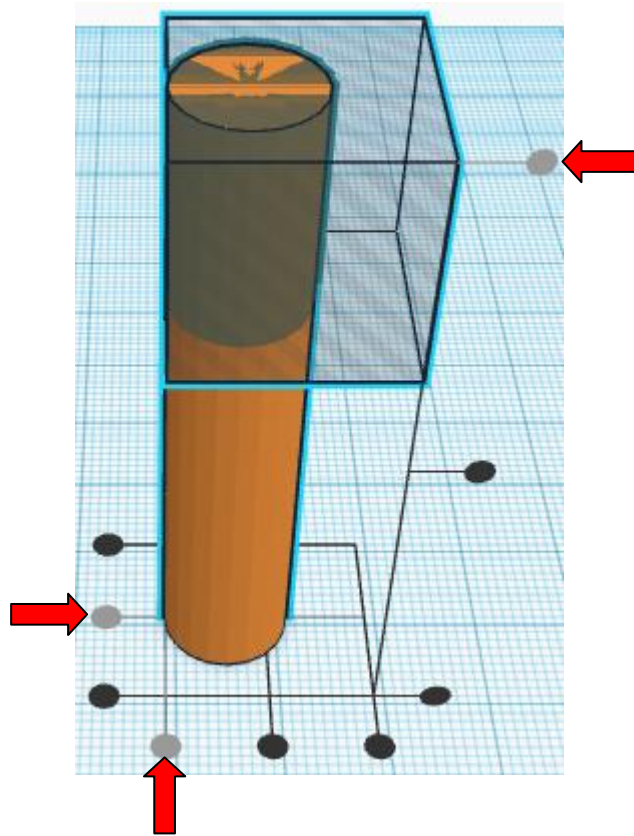
Leave the dimensions as
20mm X direction,
20mm Y direction, and
20mm Z direction.



Change Tail Cutout to **Hole** by selecting Tail Cutout and typing "h".

Align Tail Cutout and Inside Tail

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

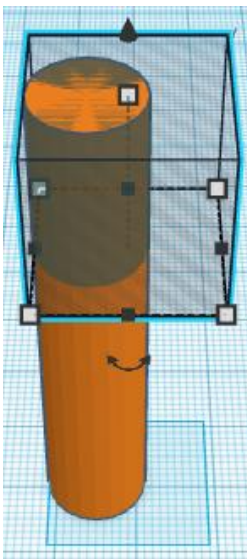


Move Tail Cutout (Must be in home view for this to work!)

move right in positive X direction 2mm
and
move up in positive Z direction 5mm

Hint: Select Tail Cutout and push right arrow key 2 times. Then hold control down and push up arrow 5 times.

Before



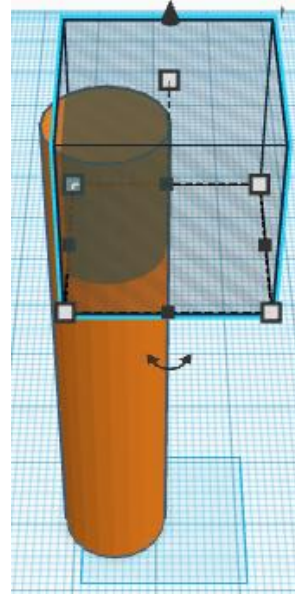
2mm
right



5mm
up
(hold control)



After



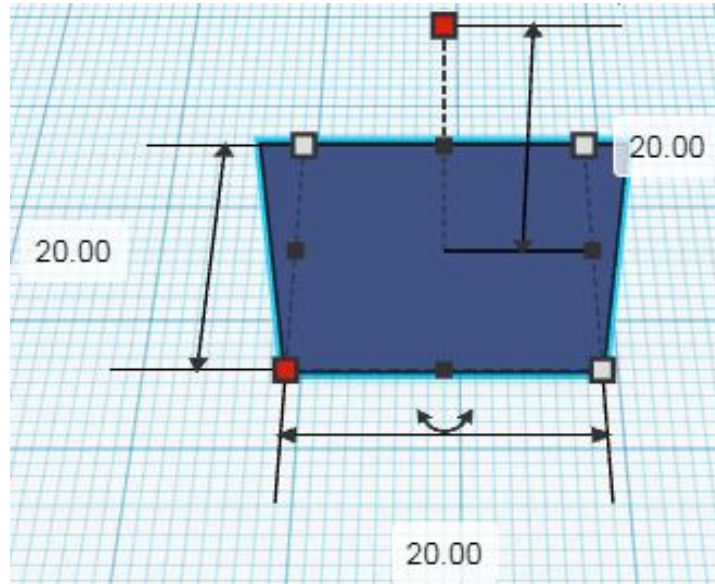
Group Tail Cutout and Inside Tail

From now on this will be called the **Inside Tail**.

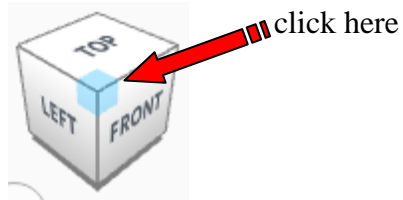
Air hole:

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

Leave the dimensions as
20mm X direction,
20mm Y direction, and
20mm Z direction.



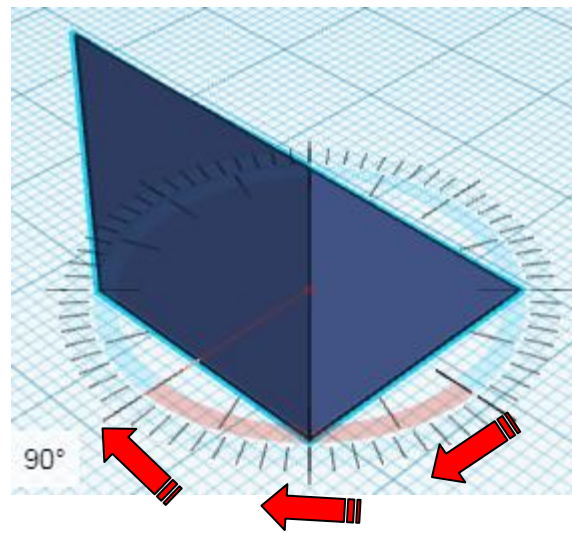
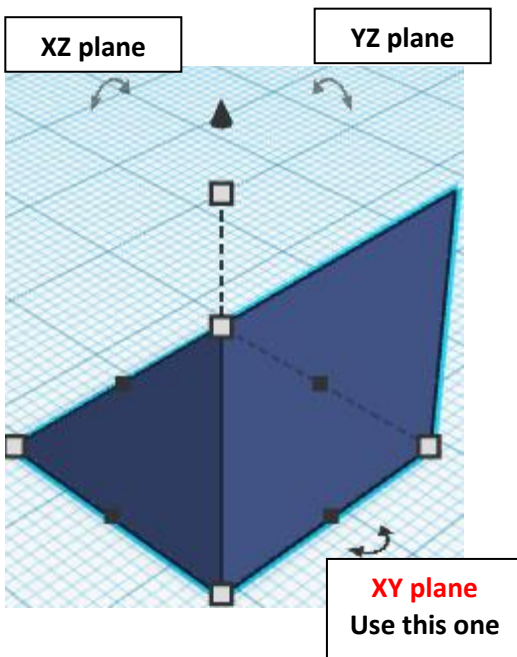
Go to TOP LEFT FRONT view for rotations



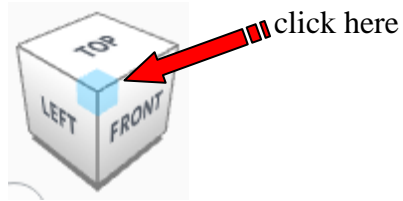
Rotate the Air Hole clockwise 90 degrees in XY plane.

Before

After

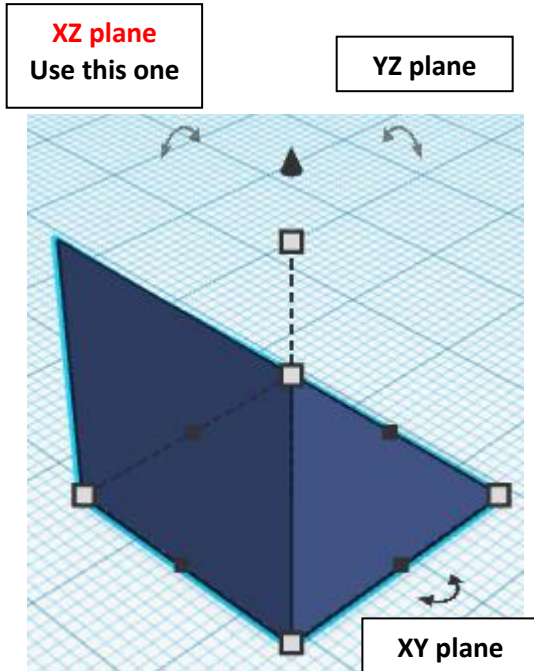


Go to TOP LEFT FRONT view for rotations

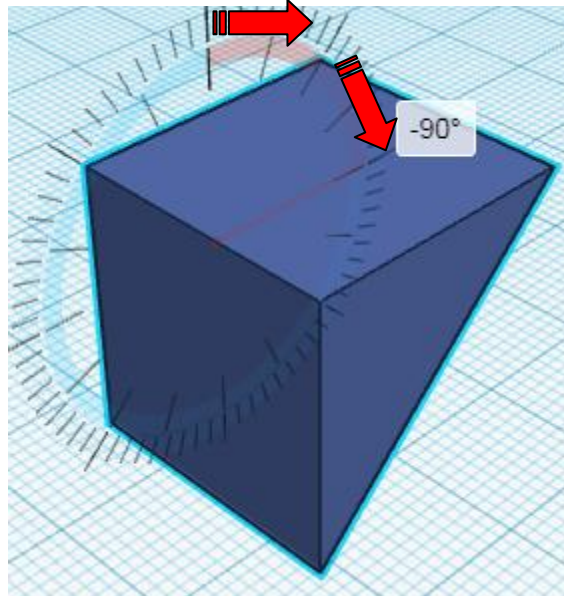


Another Rotate the Air Hole clockwise 90 degrees in XZ plane.

Before

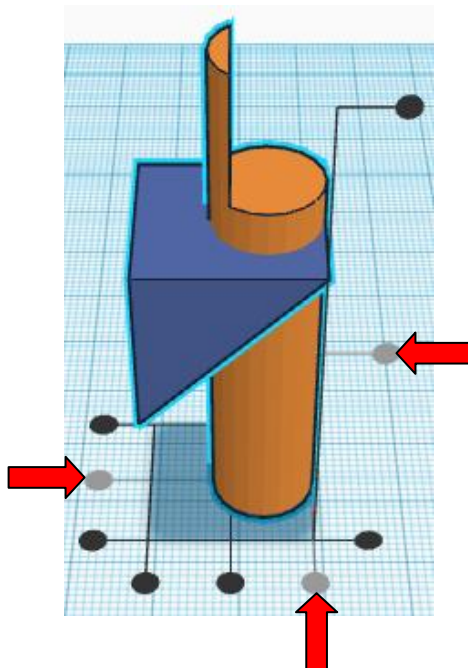


After



Align Air Hole and Inside Tail

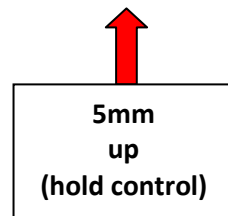
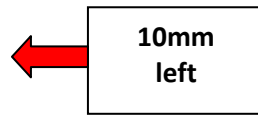
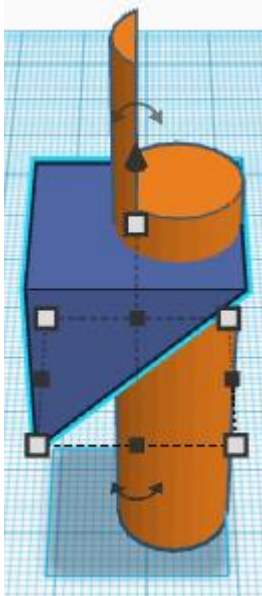
right in X direction,
centered of Y direction, and
centered of Z direction.



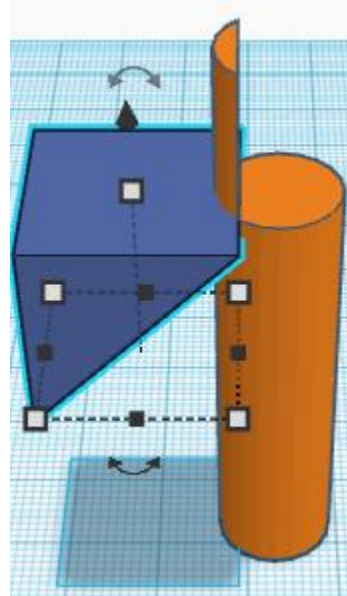
Move Air Hole (Must be in home view for this to work!)
move left in negative X direction 10mm
and
move up in positive Z direction 5mm

Hint: Select Air Hole and hold shift and push left arrow key 1 time. Then hold control down and push up arrow 5 times.

Before



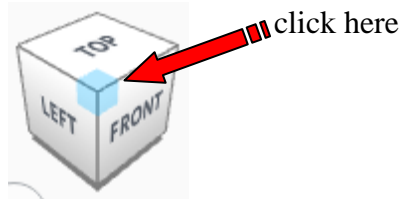
After



Group Air Hole and Inside Tail

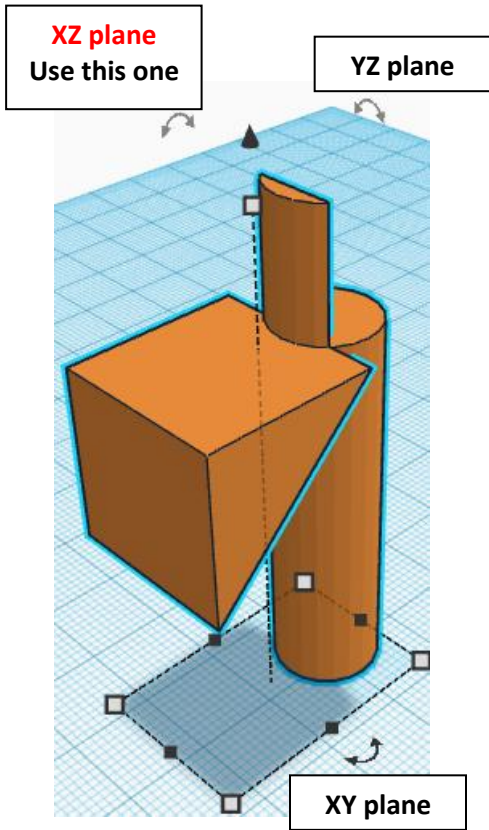
From now on this will be called the **Inside Tail**.

Go to TOP LEFT FRONT view for rotations

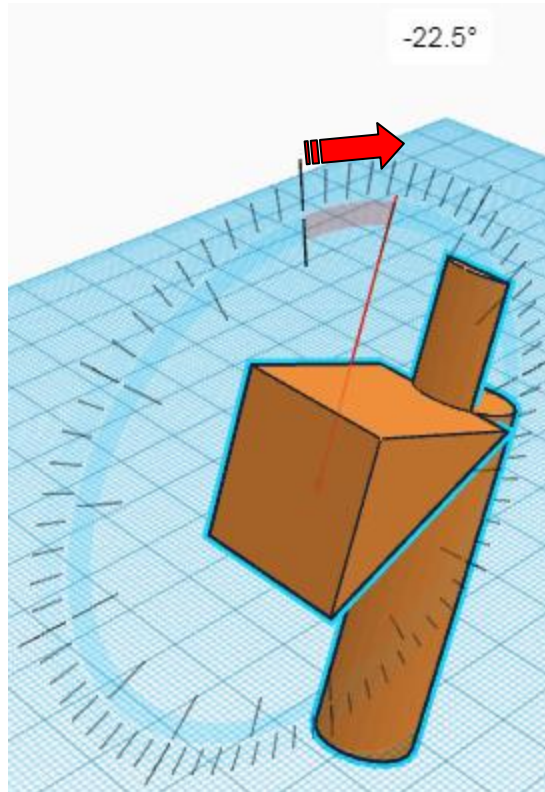


Rotate the Inside Tail clockwise 22.5 degrees in XZ plane.

Before

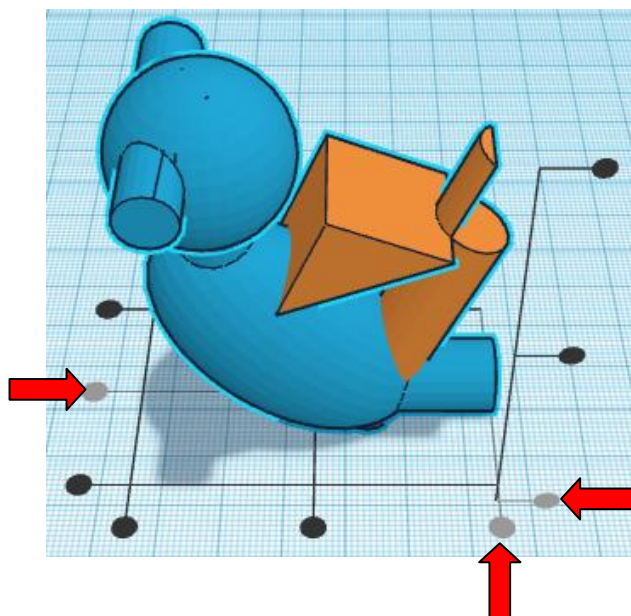


After



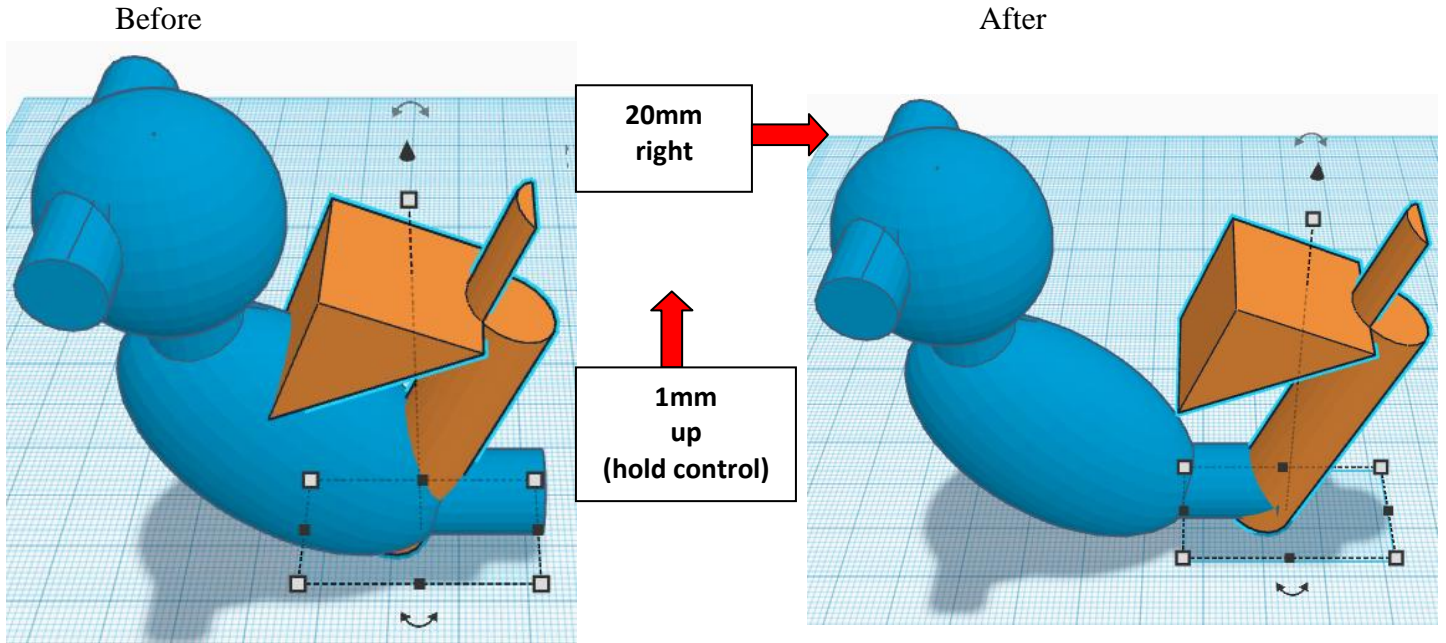
Align Inside Body and Inside Tail

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



Move Inside Tail (Must be in home view for this to work!)
move right in positive X direction 20mm
and
move up in positive Z direction 1mm

Hint: Select Inside Tail and hold shift and push right arrow key 2 times.
Then hold control down and push up arrow 1 time.

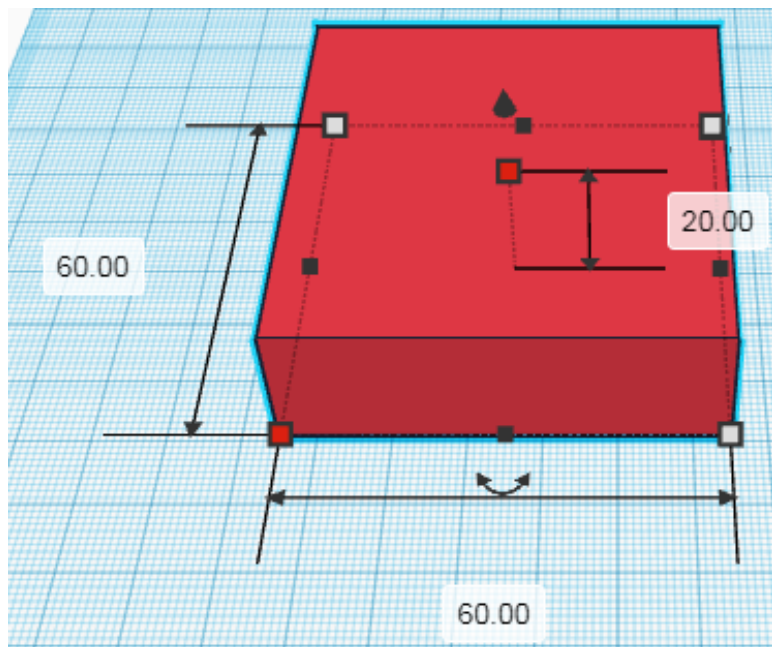


Group Inside Body and Inside Tail
From now on this will be called the **Inside Body**.

Flat Bottom:

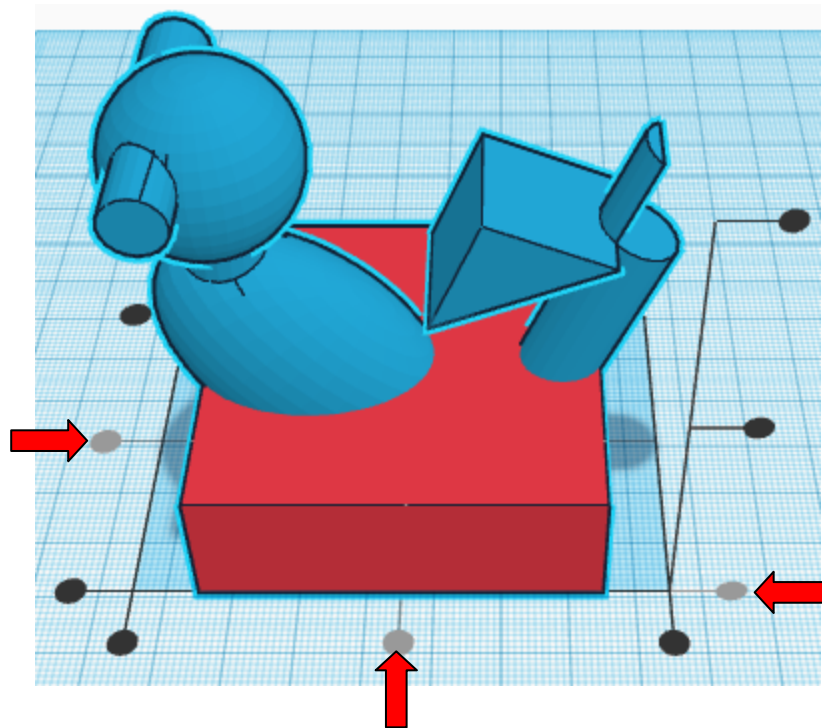
Bring in a Box, located in Basic Shapes on the left 2 shapes down.
From now on this will be called the **Flat Bottom**.

Leave the dimensions as
60mm X direction,
60mm Y direction, and
20mm Z direction.



Align Inside Body and Flat Bottom

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

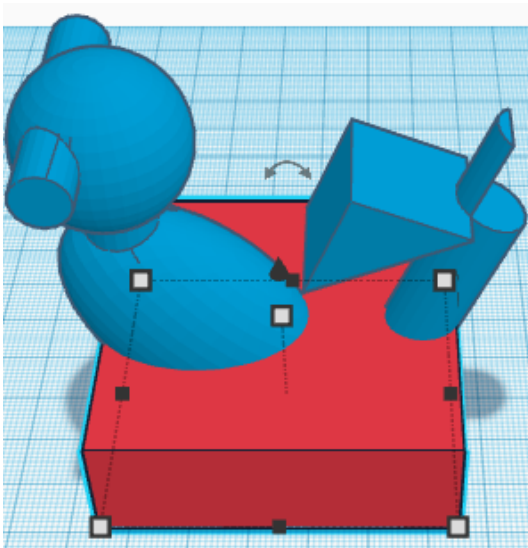


Move Flat Bottom (Must be in home view for this to work!)
move down in negative Z direction 22mm

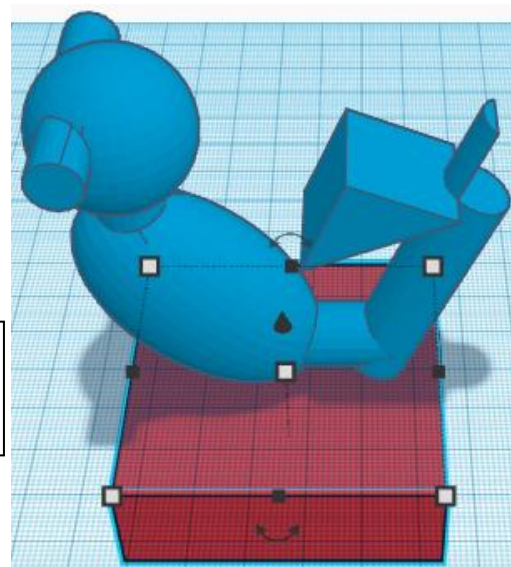
Hint: Select Flat Bottom and hold shift down and hold control down and push down arrow 2 times.
Then release the shift button but continue holding the control button and push down 2 times.

Before

After



↑
22mm
down
(hold control)



Group Inside Body and Flat Bottom

From now on this will be called the **Inside Body**.

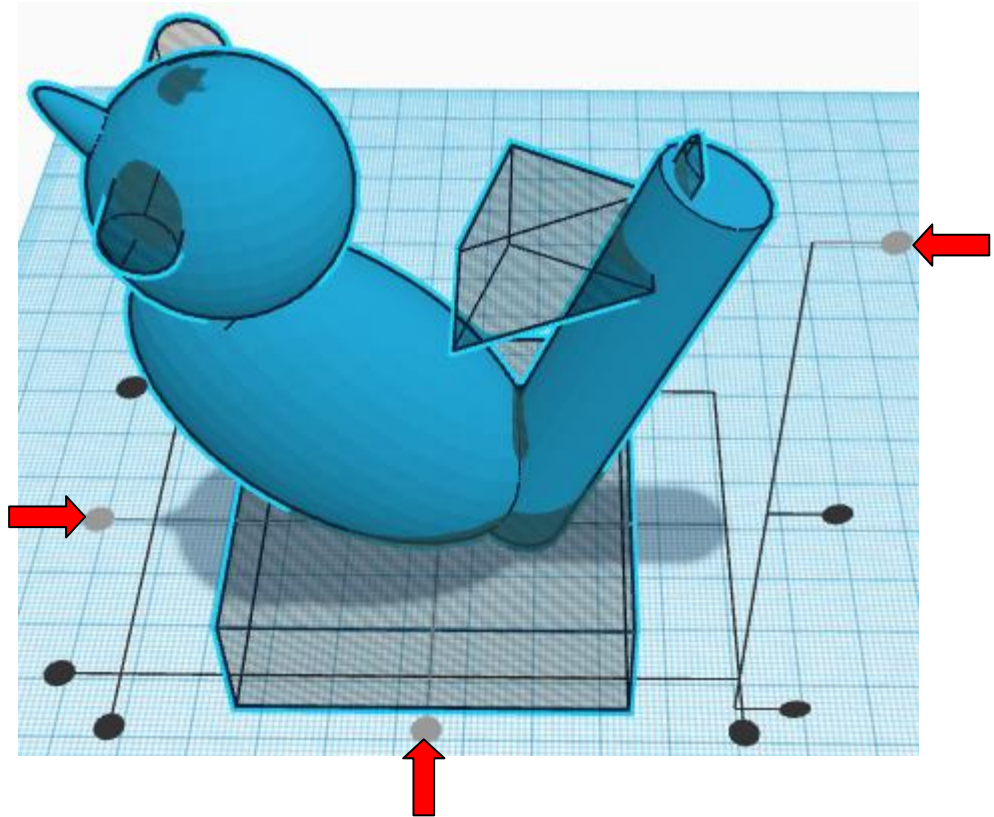
Time to put our bird together with the outside and inside parts!

First we need to change the inside to a **Hole**.

Change Inside Body to **Hole** by selecting Inside Body and typing "h".

Align Inside Body and Bird

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

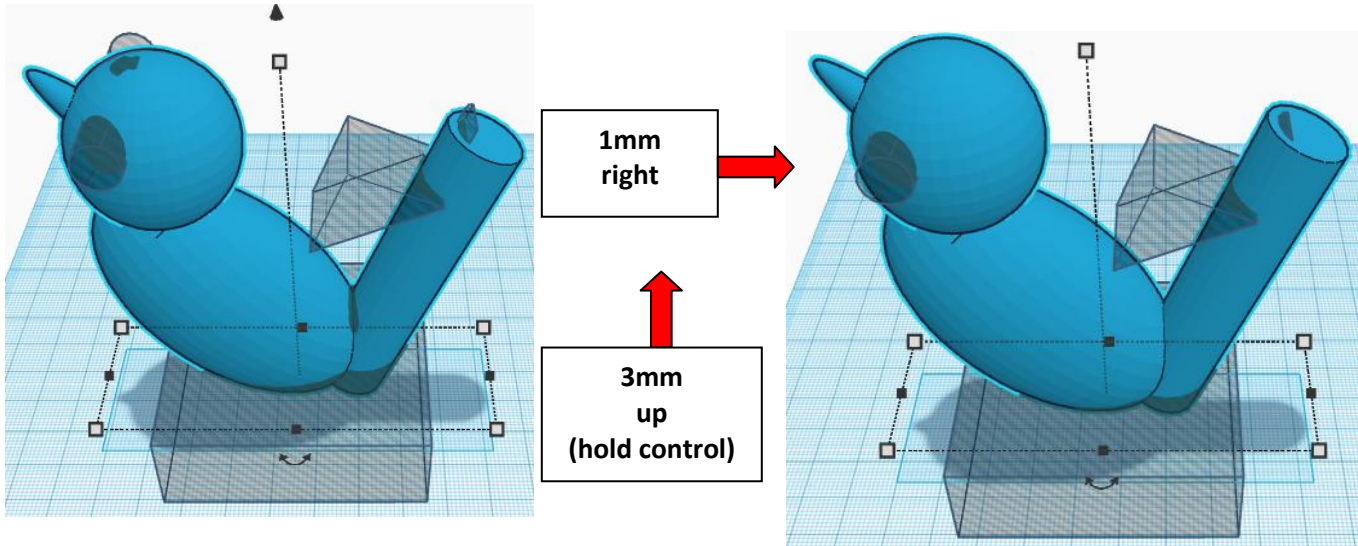


Move Bird (Must be in home view for this to work!)
move right in positive X direction 1mm
and
move up in positive Z direction 3mm

Hint: Select Bird and push right arrow key 1 time. Then hold control down and push up arrow 3 times.

Before

After



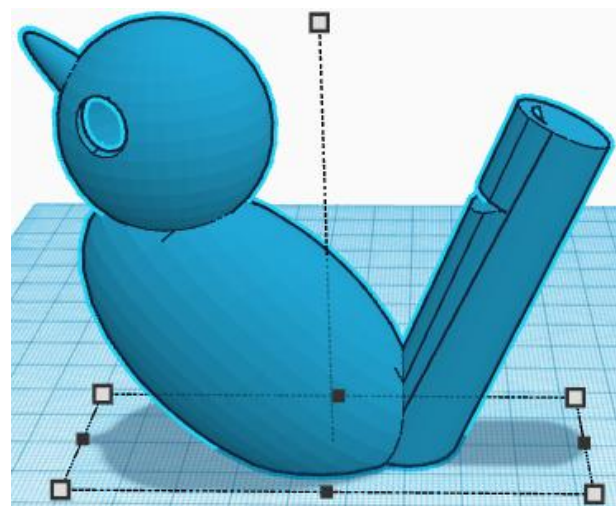
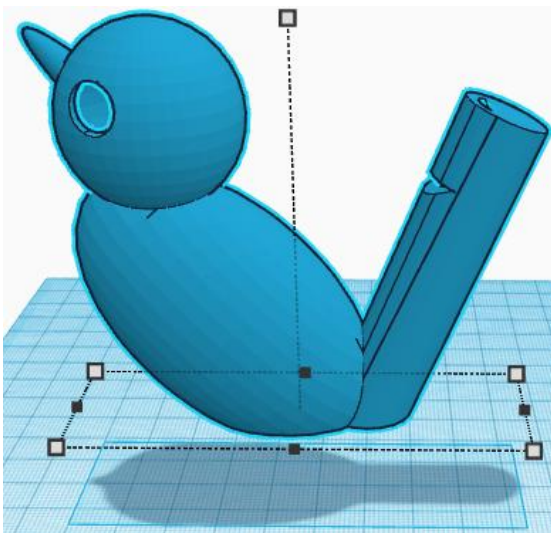
Group Inside Body and Bird
From now on this will be called the **Bird**.

Set on Workplane:

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

Before

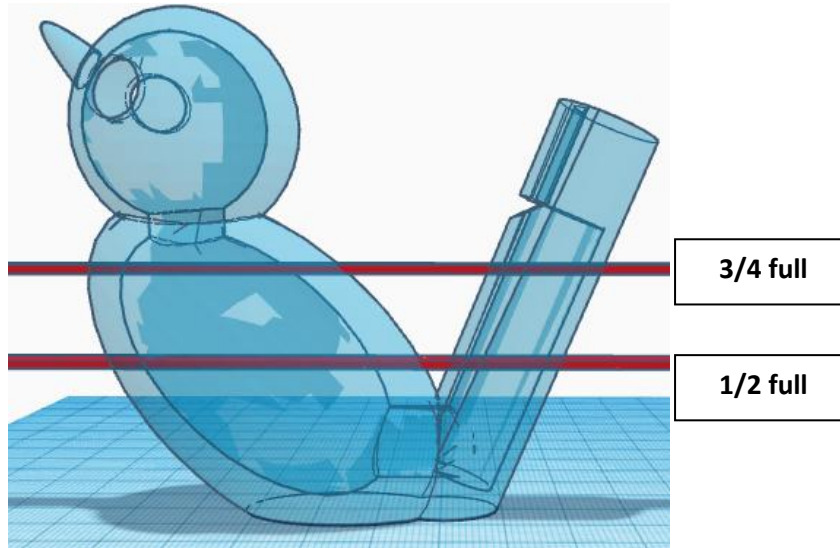
After



You are done and ready to print.

After printing let bird cool completely before adding water .

Add water through the eye till bird is between about 1/2 full to 3/4 full of water.



Blow through tail to get wobbling bird whistle.