Course: 3D Design
Title: Swarm of Bees
Blender: Version 2.6X
Level: Beginning
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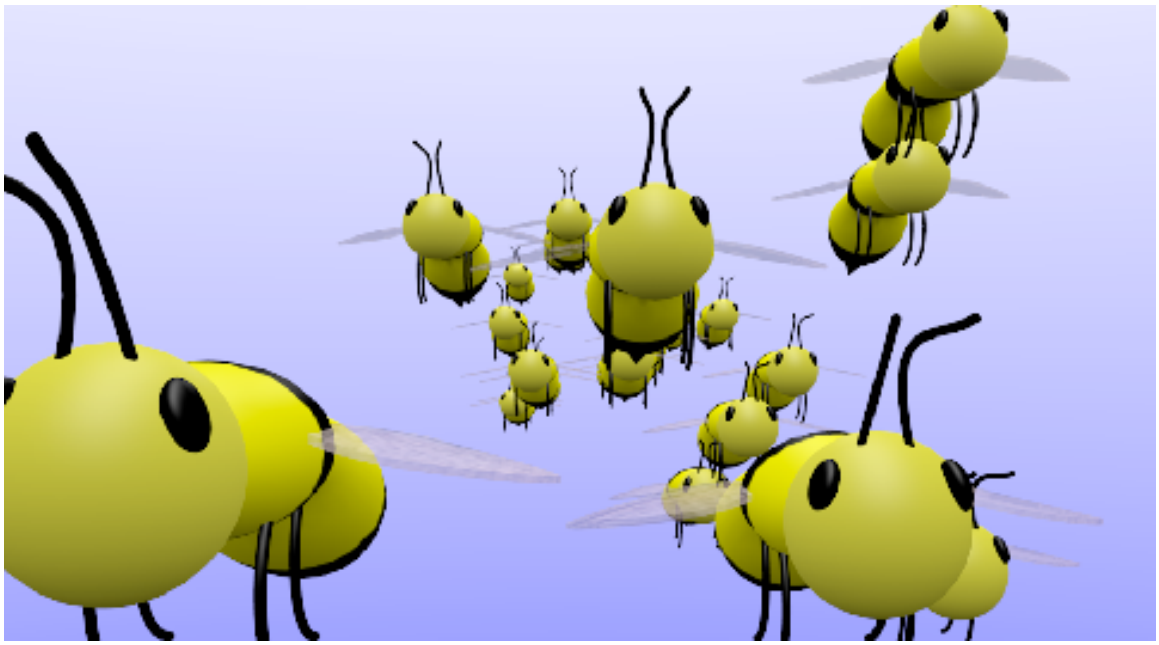
(May 2012)

Swarm of Bees



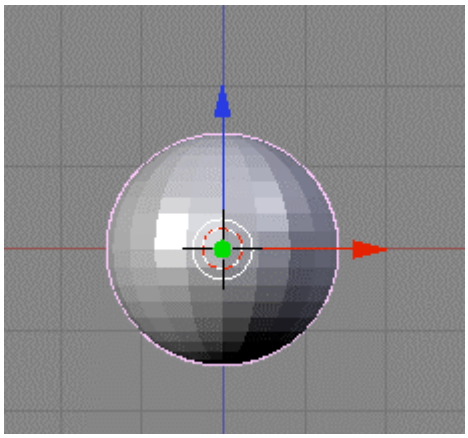
In this tutorial we will create a swarm of bees using Blender's Particle System.

Open Blender. Select the default cube object and delete it.

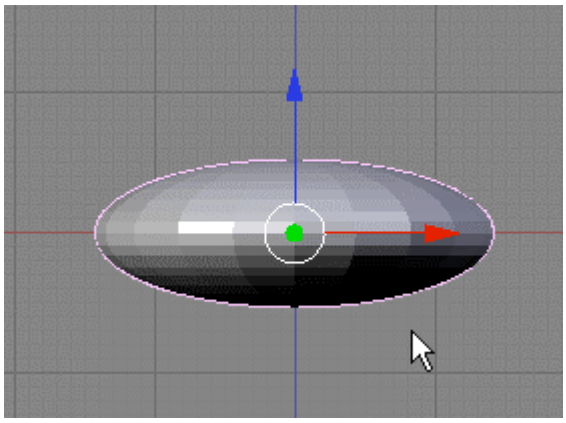
Press the NKEY to open up the properties panel on the right (if it is not already open).
Press NUMPAD-5 to go to Orthographic Projection mode (if you are in perspective).

We will first need to model a single bee as the prototype for the swarm. Place your cursor in the center of the display in **Top View** (**NUM7**). Add a UV Sphere object

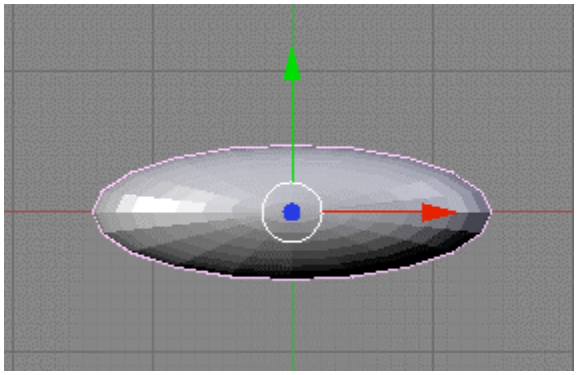
TAB out of Edit Mode and switch to **Front View** (**NUM1**).



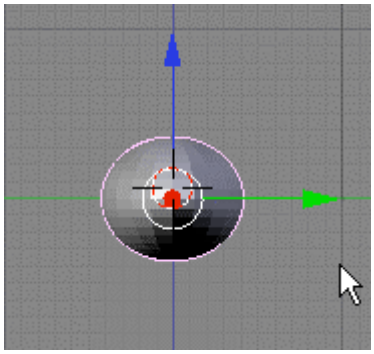
With the sphere object selected, press the **SKEY**, then press the **Z** Key and scale the sphere object down in the Z direction as shown below.



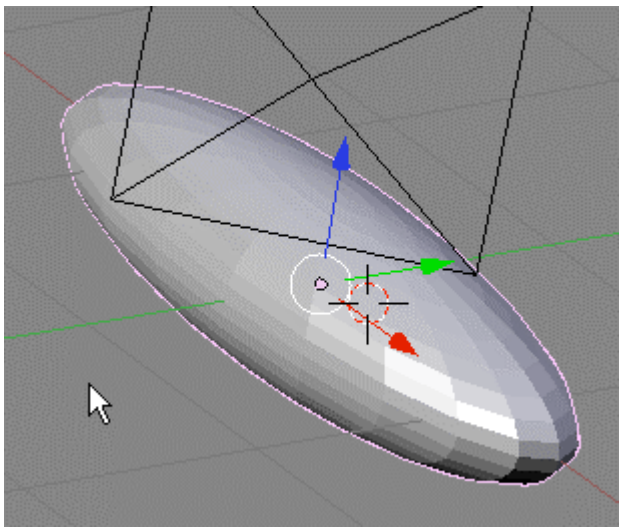
Switch to Top View (**NUM7**). With the sphere object selected, press the **SKEY**, then press the **Y** Key and scale the sphere object down in the Y direction as shown below.



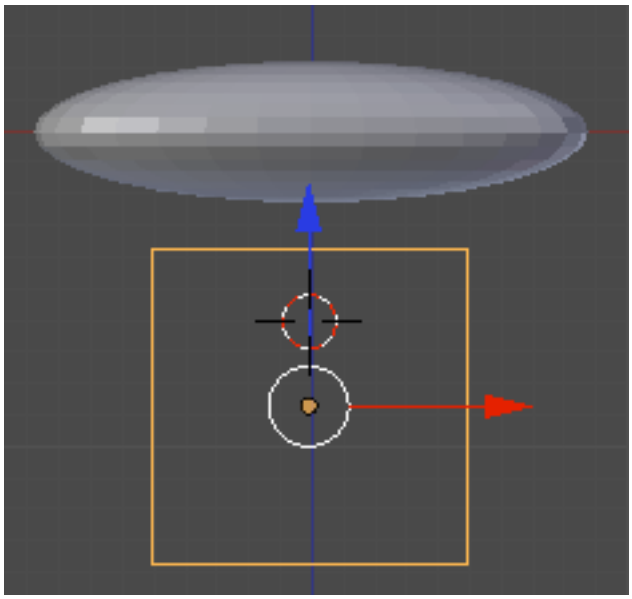
Switch to Side View (**NUM3**). With the sphere object selected, press the **SKEY**, then press the **Z** Key and scale the sphere object down in the Z direction as shown below.



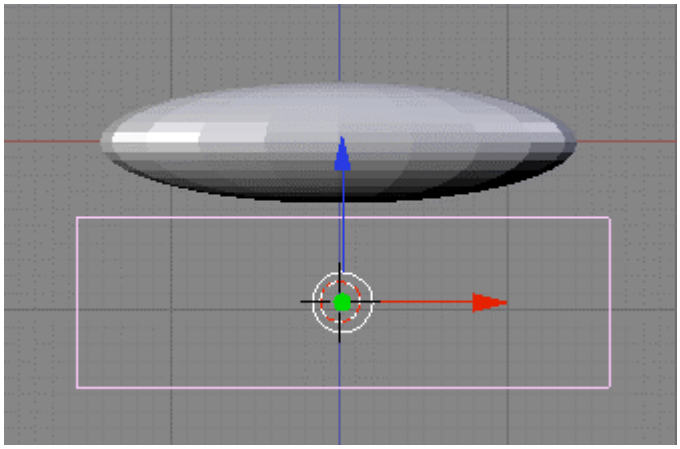
Switch to Front View (**NUM1**). Orbit your view a bit to see the sphere in 3 dimensions. It should look as shown below.



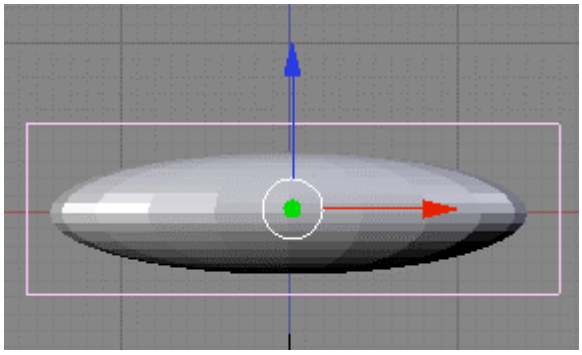
We will use a lattice deformation tool to form the bee's body. Switch to Front View (**NUM1**). Place your 3D cursor below the sphere and add a lattice object.



With the Lattice selected, press the **SKEY** then press the **X** Key and scale the lattice object up along the X axis as shown.

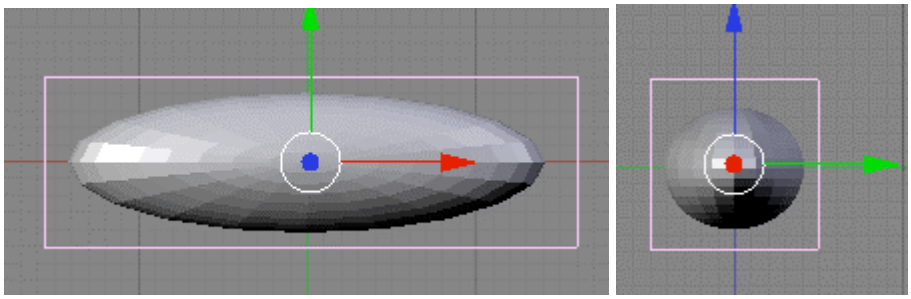


Grab the lattice object and center it on the sphere object.

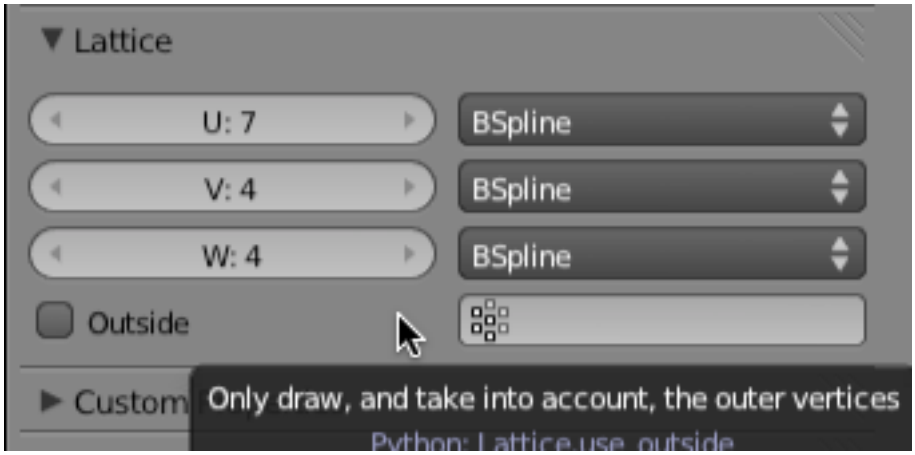


If the lattice does not totally encompass the sphere press the **SKEY**, then the **Z** Key and scale the lattice up so it encompasses the sphere.

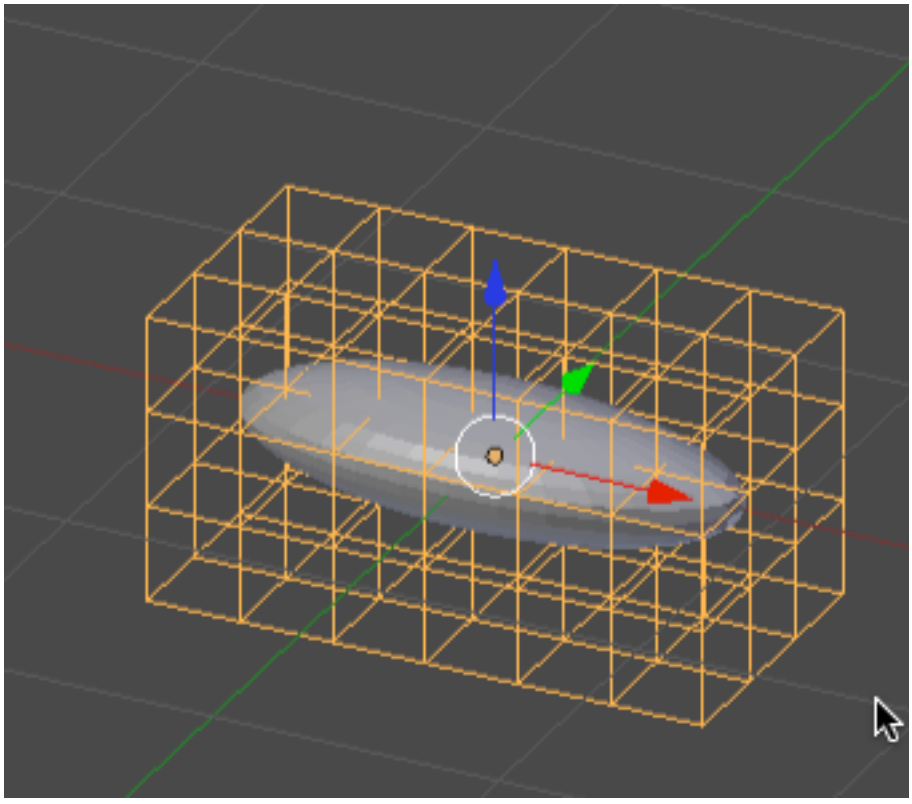
Check the Top View (**NUM7**) and the Side View (**NUM3**) and make sure the lattice completely encloses the sphere. If it does not you may have to move and /or scale the lattice in the appropriate direction.



Switch to Front View (**NUM1**). With the Lattice object selected, go to the Object Data editor. In the Lattice panel set the U to 7, the V to 4 and the W to 4



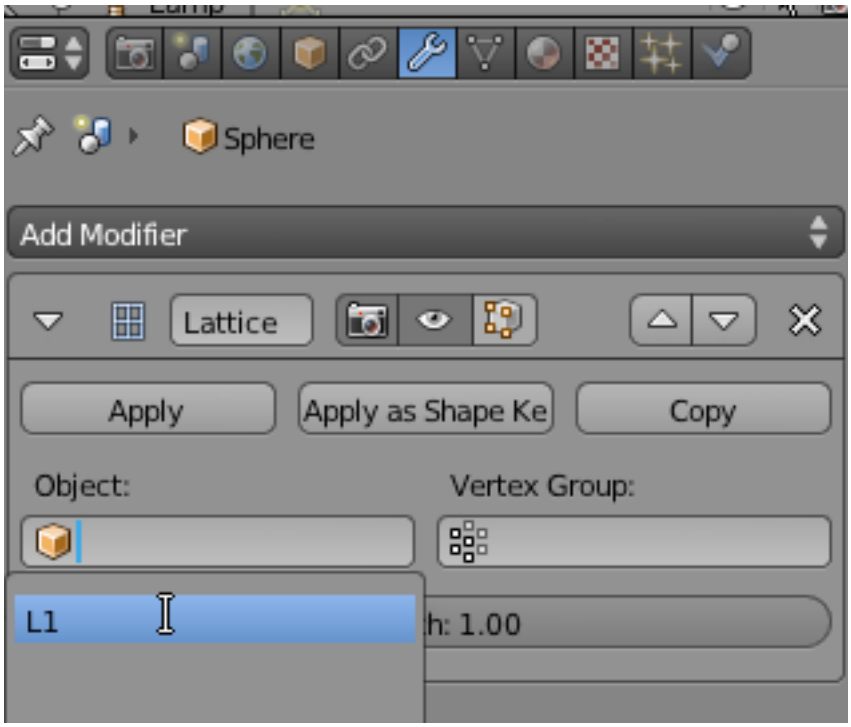
Rotate your display a bit to see how the lattice sits in relation to the sphere.



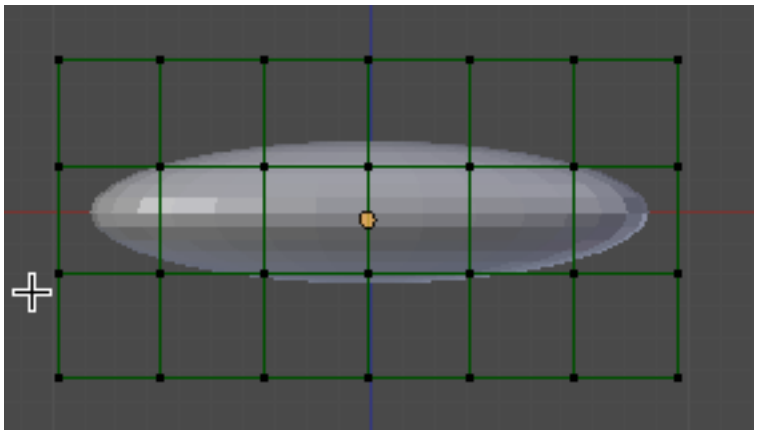
Name this Lattice object “L1”

Select the UV sphere object. Go to the Modifier Editor. Press Add Modifier and select the Lattice modifier.

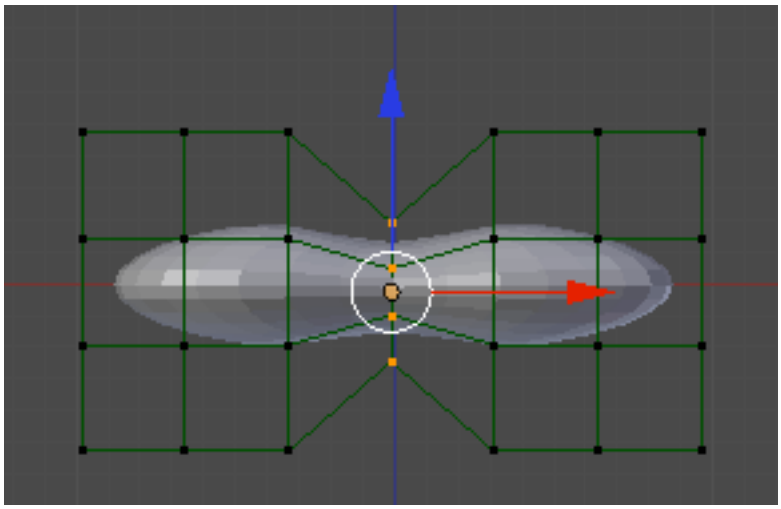
Click in the Object box and select the L1 lattice object.



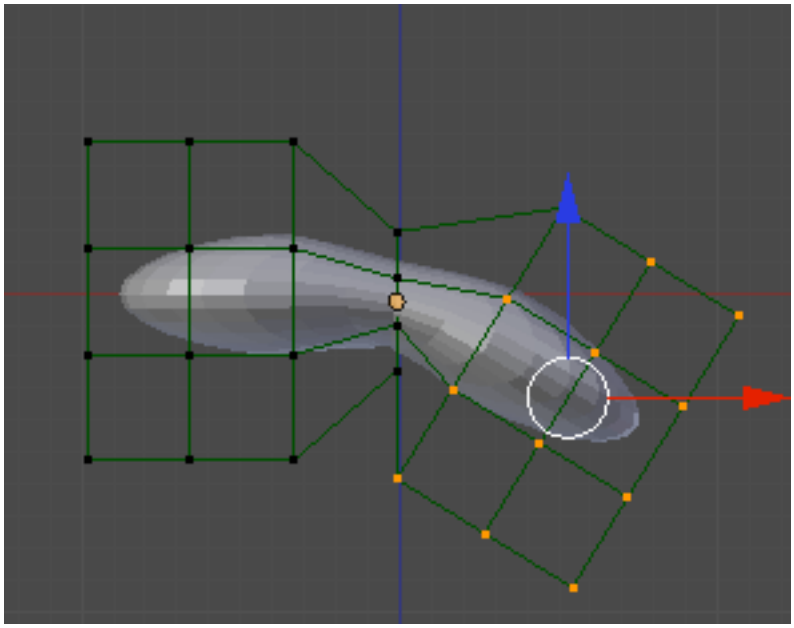
Switch to Front View (**NUM1**) **Select the Lattice only**. Press the **TAB** key to enter Edit Mode on the Lattice.



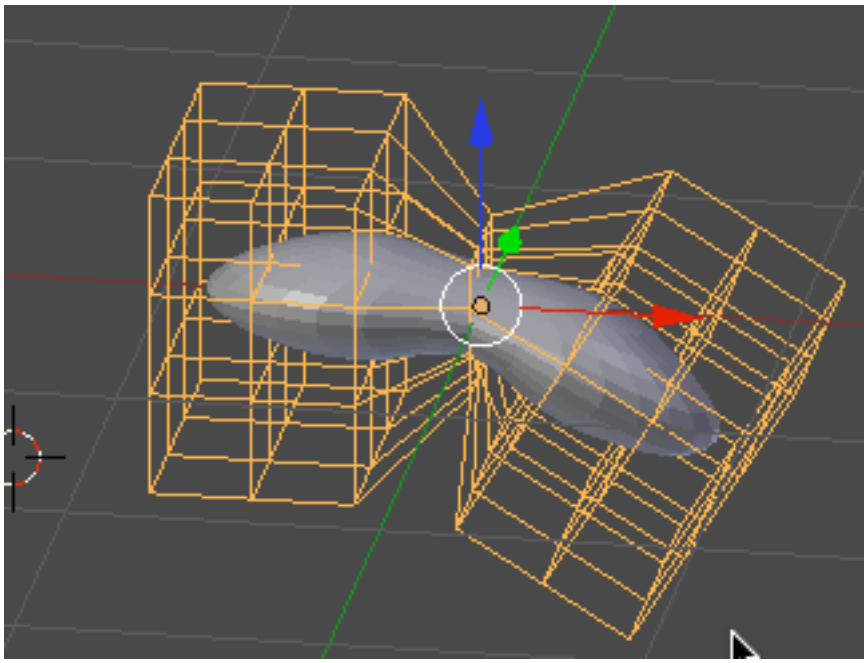
Box select the middle control vertices and Scale them down a bit as shown below.



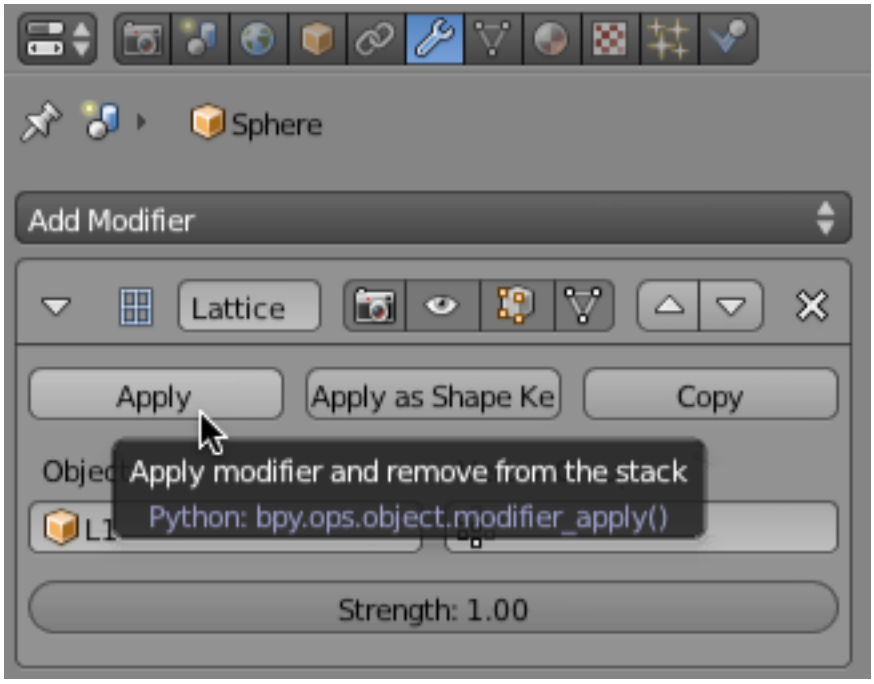
Select the 3 columns of vertices on the right and rotate them a bit and grab them and move them down as shown below.



This provides the downward tilt of the bee's body. **TAB** out of Edit Mode. Orbit your Model a bit to see it dimensionally.

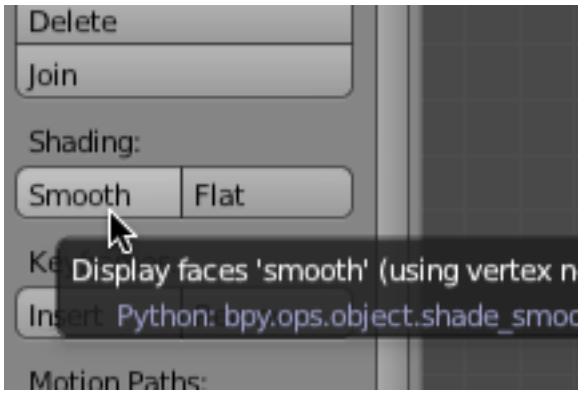


TAB out of edit mode. Select the UV Sphere object. Go to the Modifier Editor. Press the "Apply" button.



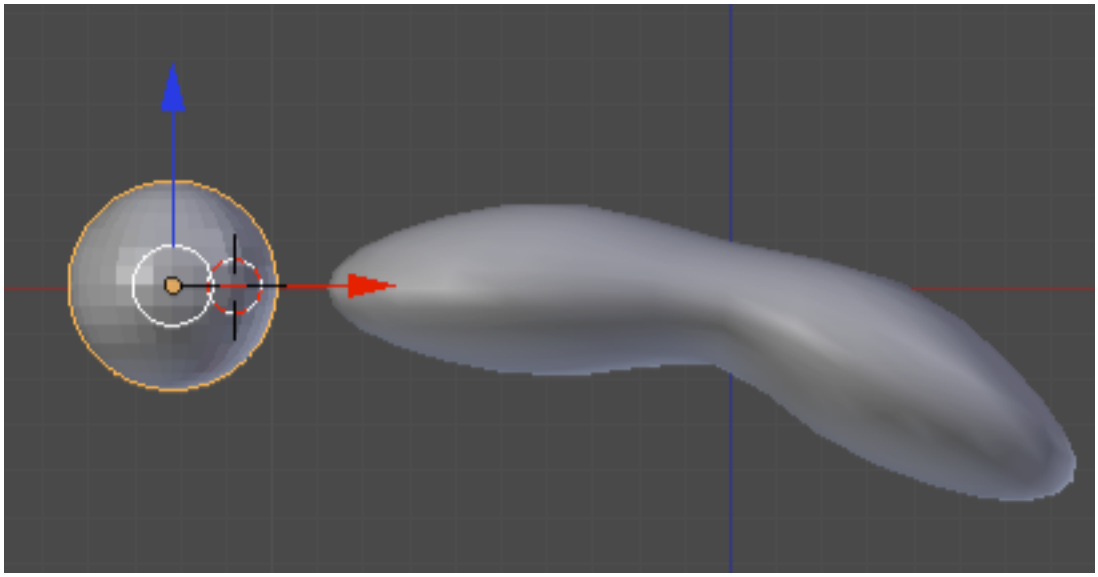
This will permanently apply the modifier to the mesh. Select the lattice object and delete it.

Select the UV Sphere object. In the tools panel on the left click the Smooth button.

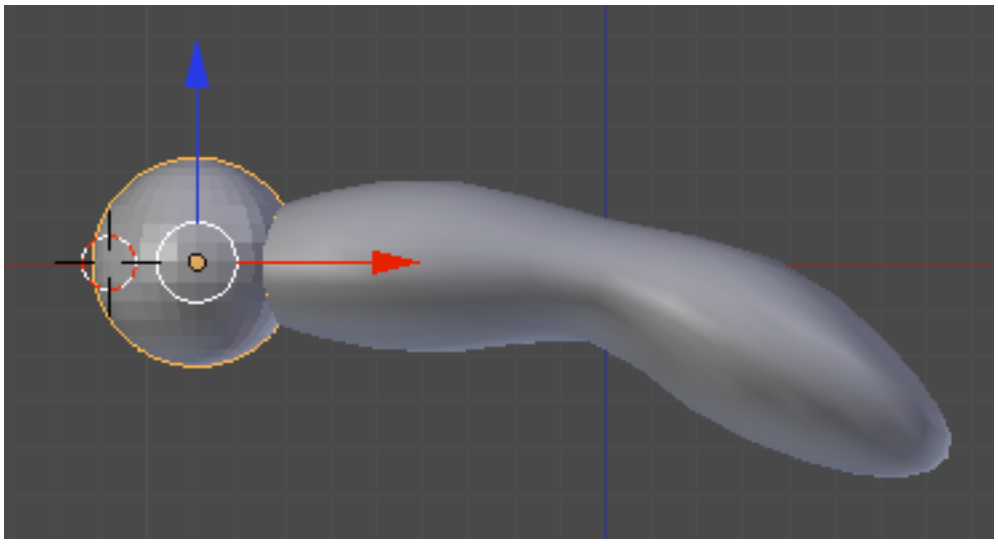


Name this object “BeeBody”

Switch to Front View. Place your 3D cursor to the left of the Beebody object. Add a UV Sphere. Press the SKEY and scale the sphere down to a size as shown below.

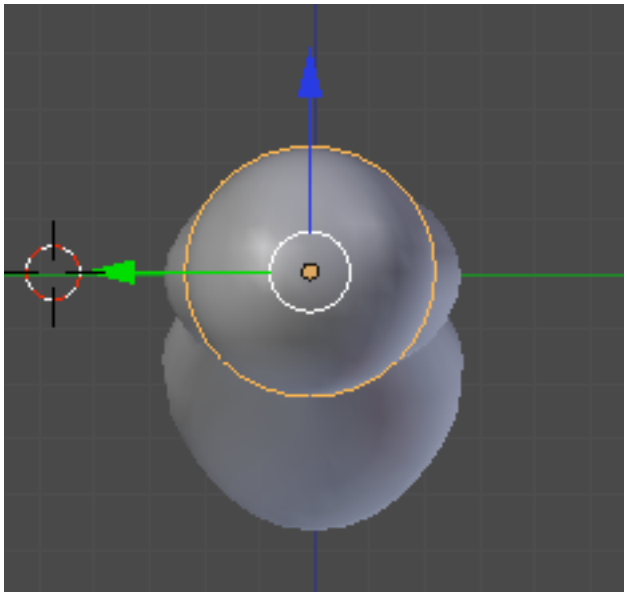


Grab the sphere and place it on the Beebody object as shown. (You will have to switch views to properly place the sphere)

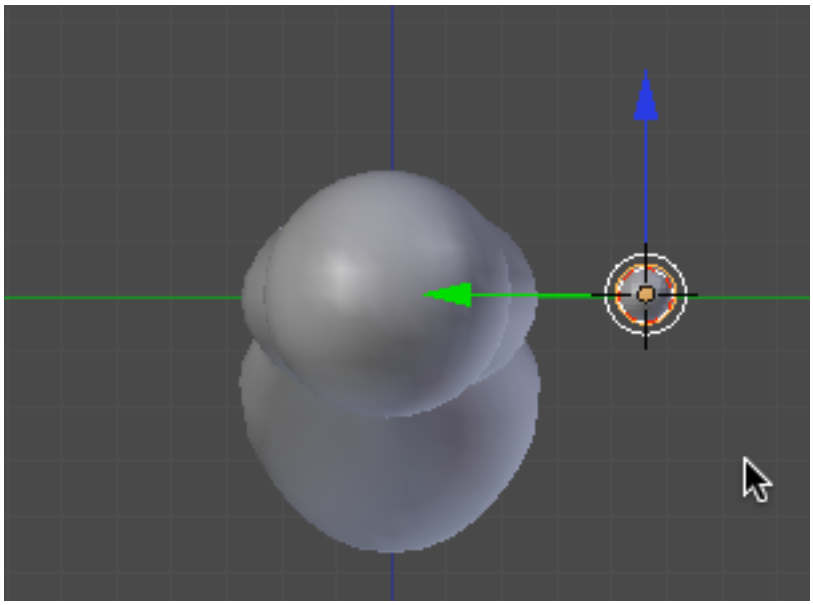


Name this object Beehead. Click the Smooth button.

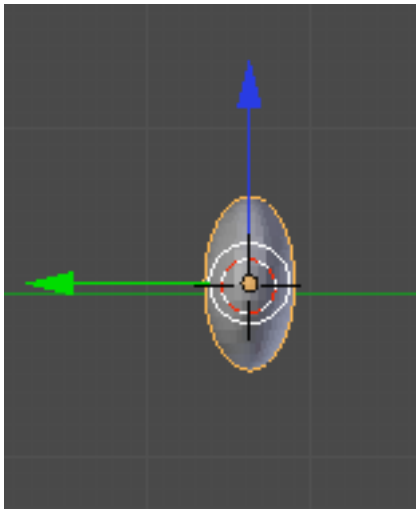
Go to Left Side View (**CTRL-NUMPAD-3)**



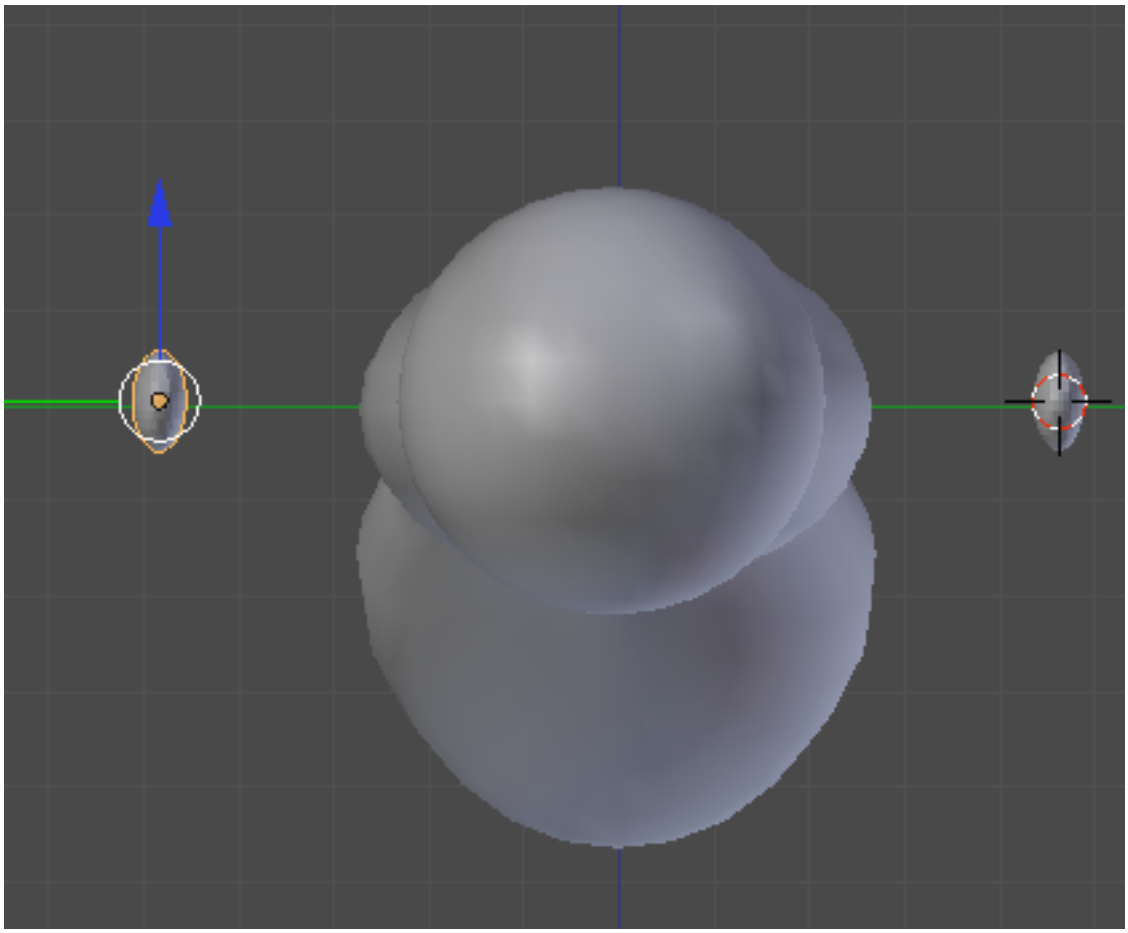
Place your cursor to the right of the bee's head. Add a UV sphere and scale it down as shown.



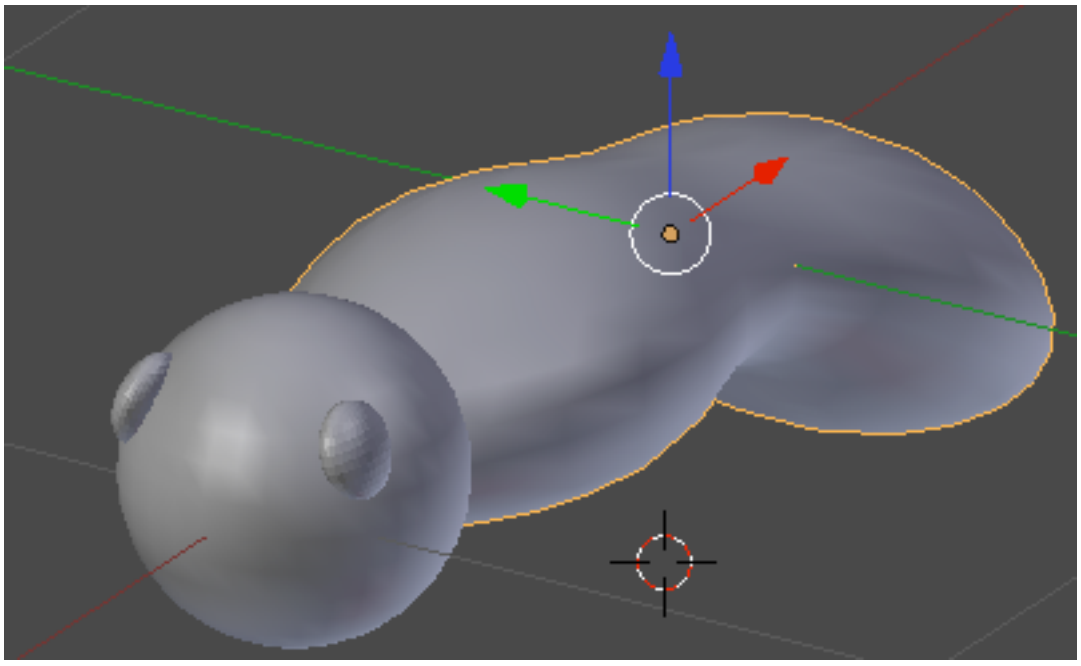
Scale the sphere object again this time along the Y axis as shown.



Press **SHIFT-D** to make a duplicate copy of the sphere. Move it to the other side of the Beehead object.

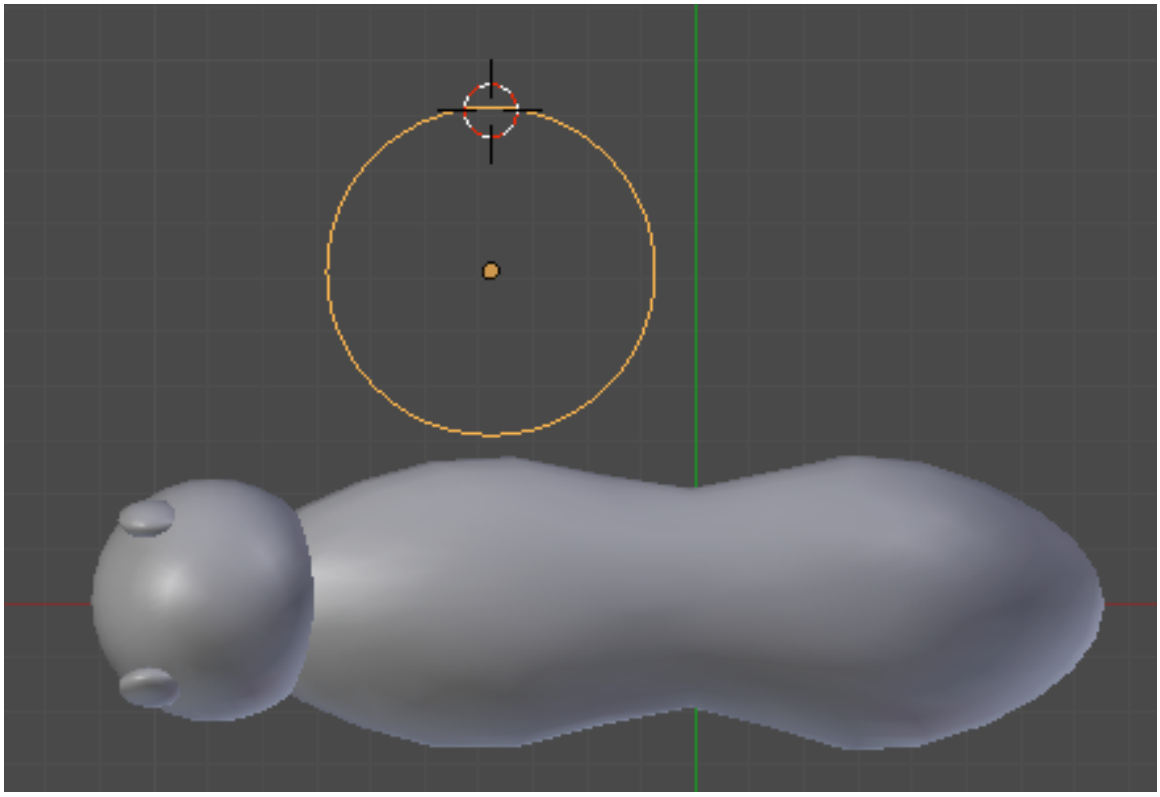


These spheres will serve as the bee's eyes. Position them as shown below. (Note you will need to rotate them a bit to conform with the BeeHead object.

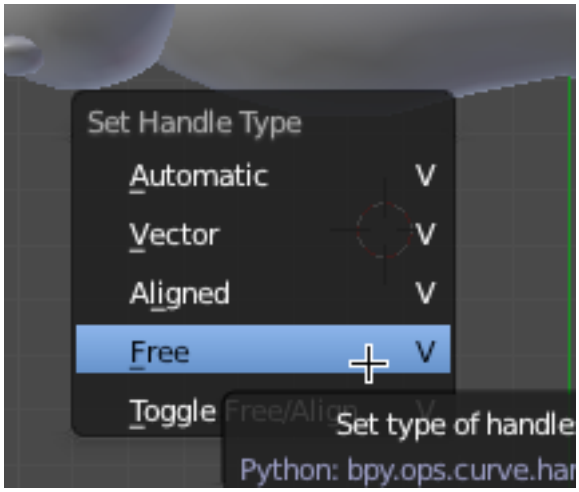


Name these objects BeeEye1 and BeeEye2. Smooth both of these objects.

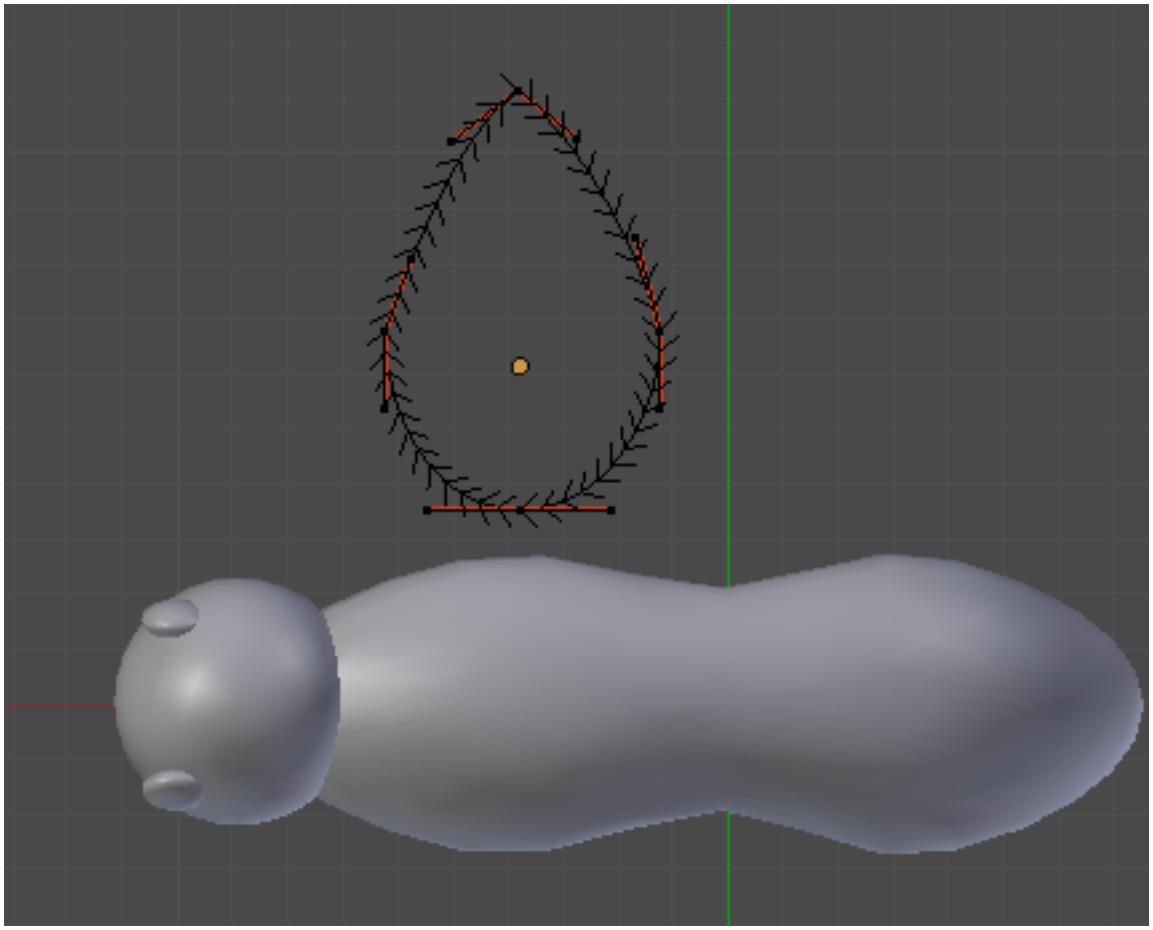
Switch to Top View (**NUM7**). Place your cursor above the BeeBody object and add a **Bezier Circle**. Scale it down as shown.



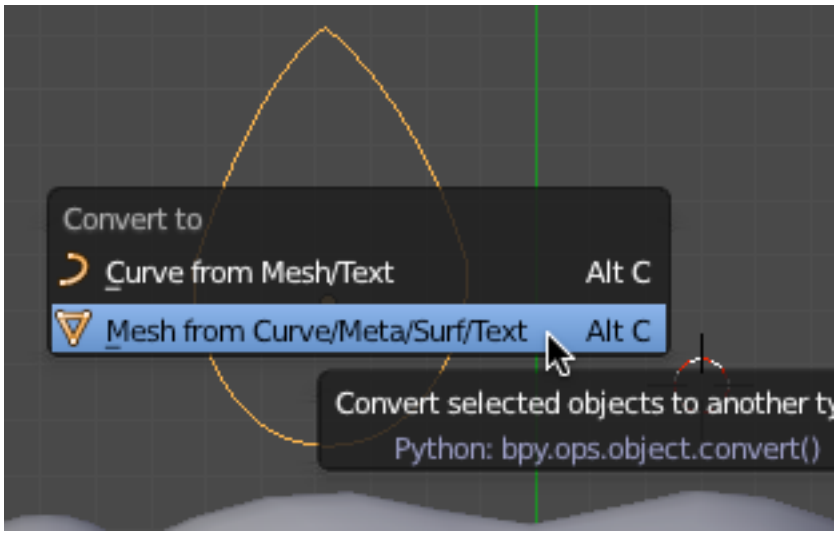
TAB into edit mode. Press the VKEY (set handle type) and select “Free”.



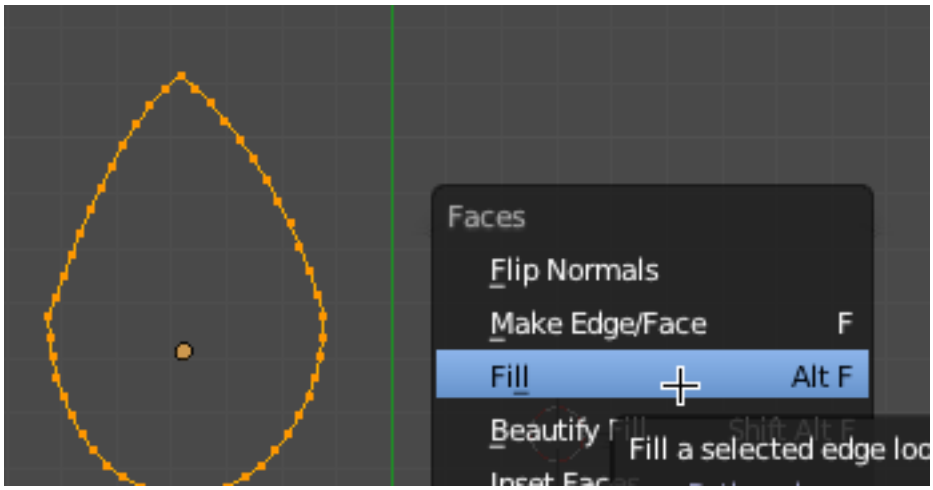
Adjust the handles and control points to model a wing shape as shown below.



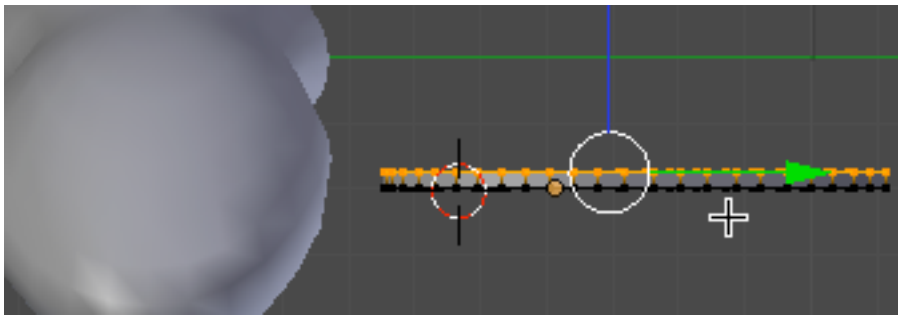
TAB out of edit mode. With the Bezier Circle object selected, press ALT-C (convert) and select Convert to Mesh from Curve.



TAB into edit mode. Press the AKEY to select all of the vertices. Press CTRL-F (face menu) and select Fill

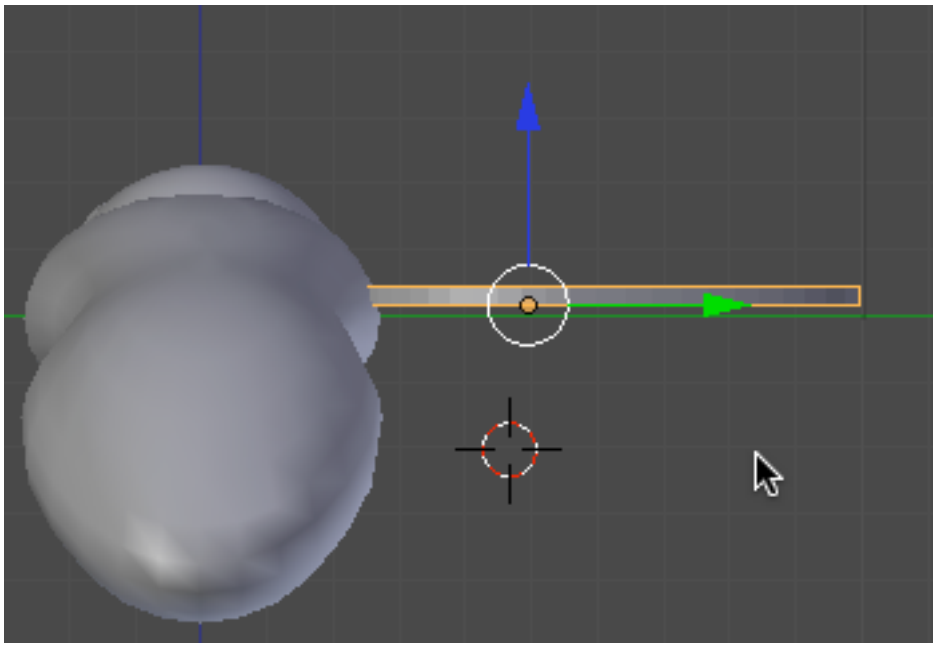


Go to side view. With all of the vertices still selected, press the EKEY (extrude) and extrude the vertices up just a slight bit as shown below.



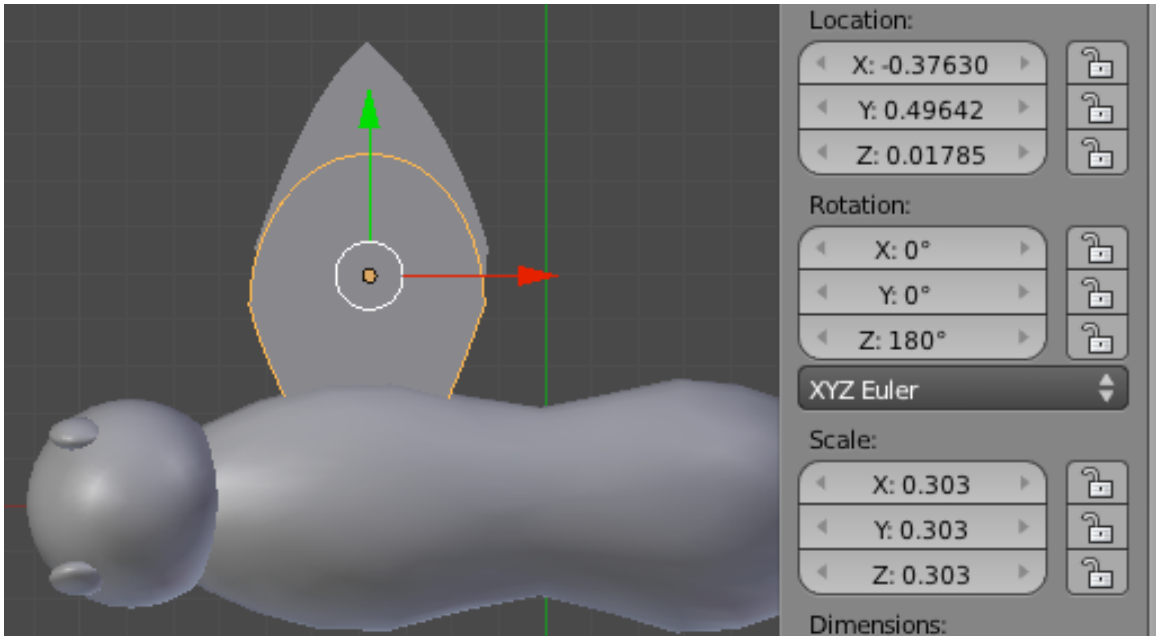
TAB out of edit mode. Name this objet “BeeWing1”

Position the BeeWing1 object in the BeeBody object as shown below.

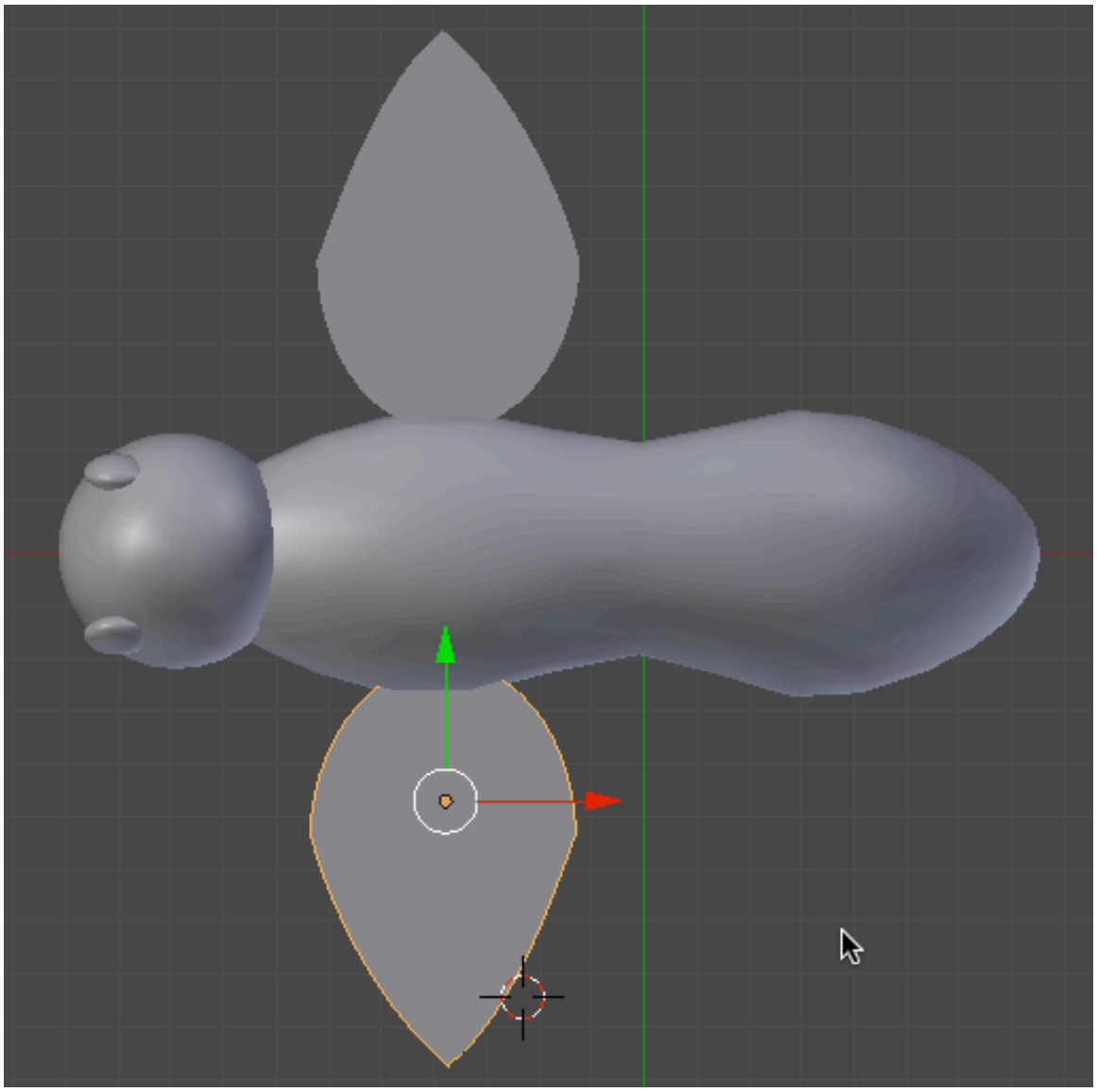


Go to Top View. Make sure the BeeWing1 object is properly positioned.

Press SHIFT-D (Duplicate). Left-Click to set. Set the Z Rotation to 180.

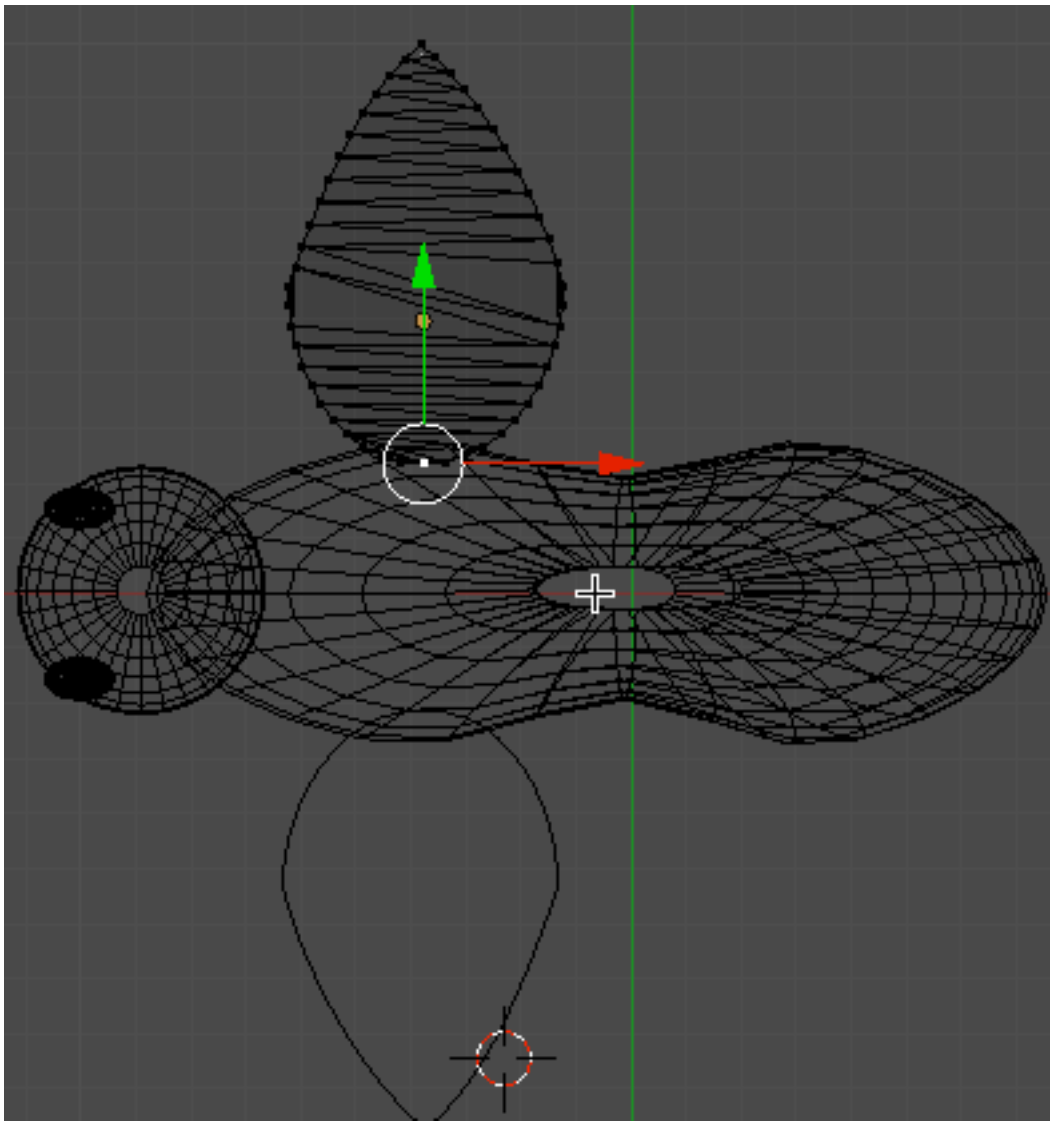


Move the duplicate object along the Y-axis into position on the other side of the BeeBody.

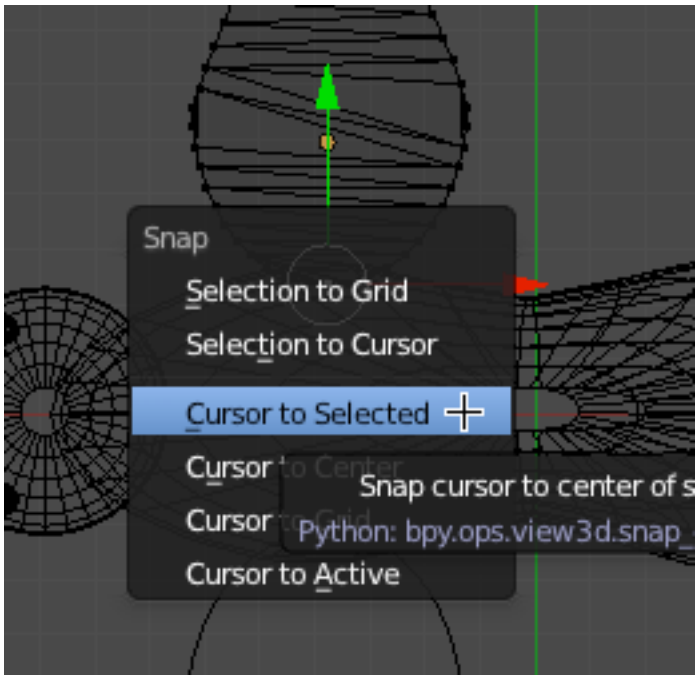


Name this duplicate object “BeeWing2”. Save your Blend file.

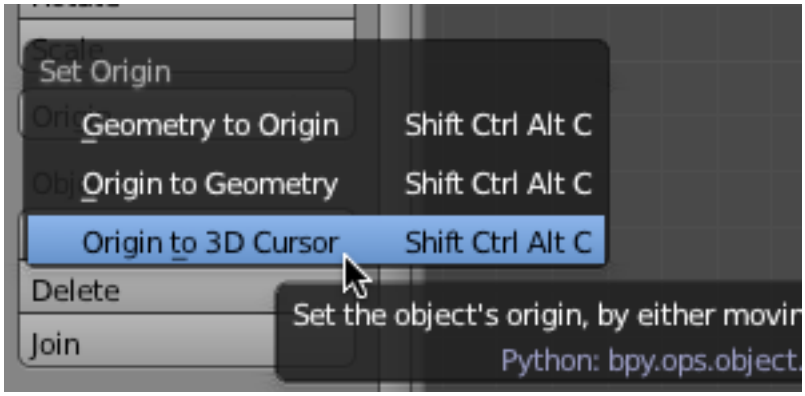
Select the BeeWing1 object. Go to Wireframe mode. TAB into edit mode. Select one of the vertices at the bottom of the object as shown below.



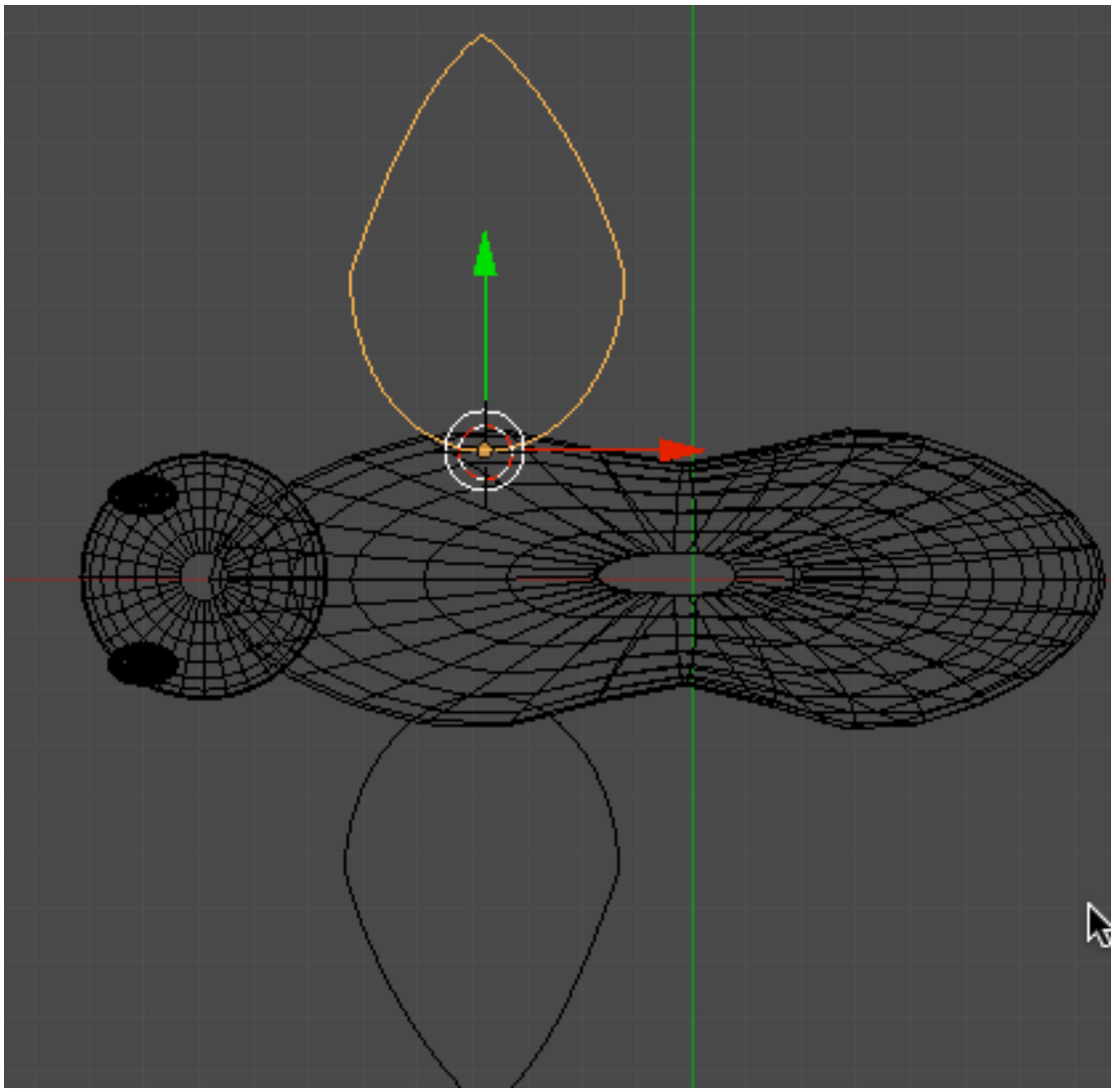
Press SHIFT-S (Snap) and select Cursor to Selected



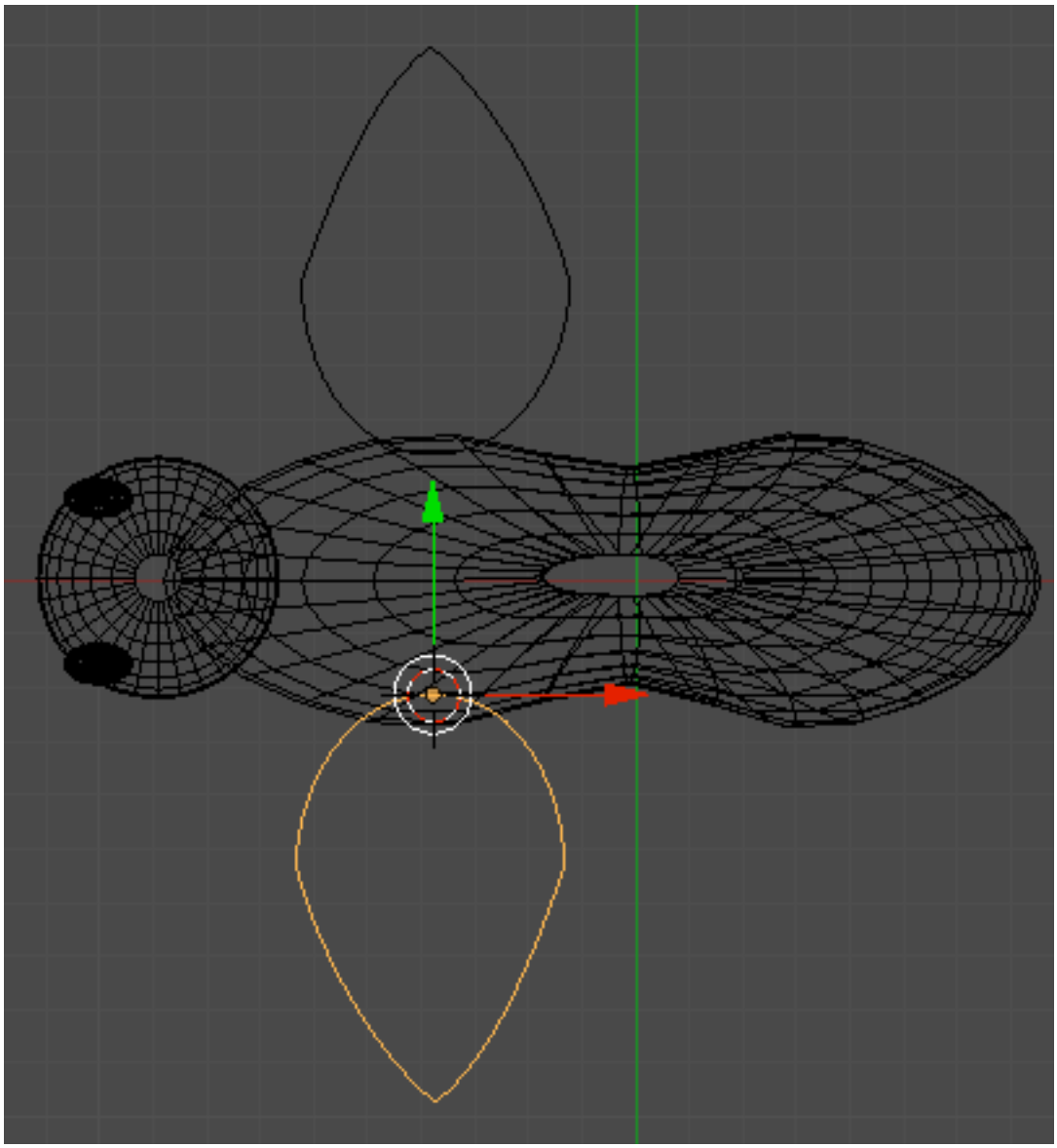
This placed your 3D cursor at the same position as the selected vertex. TAB out of edit mode. Now press the origin button in the tool panel on the left. Select Origin to 3D Cursor.



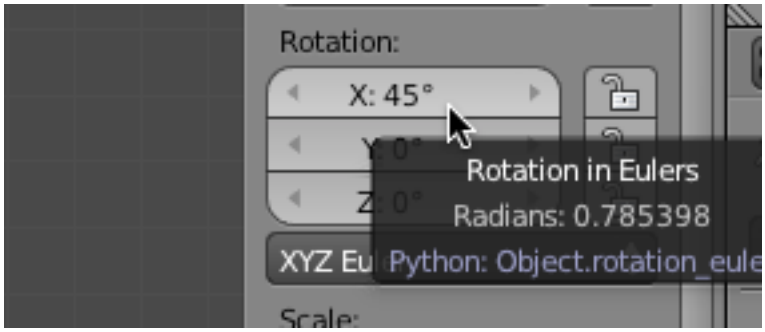
This places the object's origin point (pivot point) at the same location as the 3D cursor, which is at the same location as the selected vertex. We can now rotate the BeeWing1 object from that pivot point.



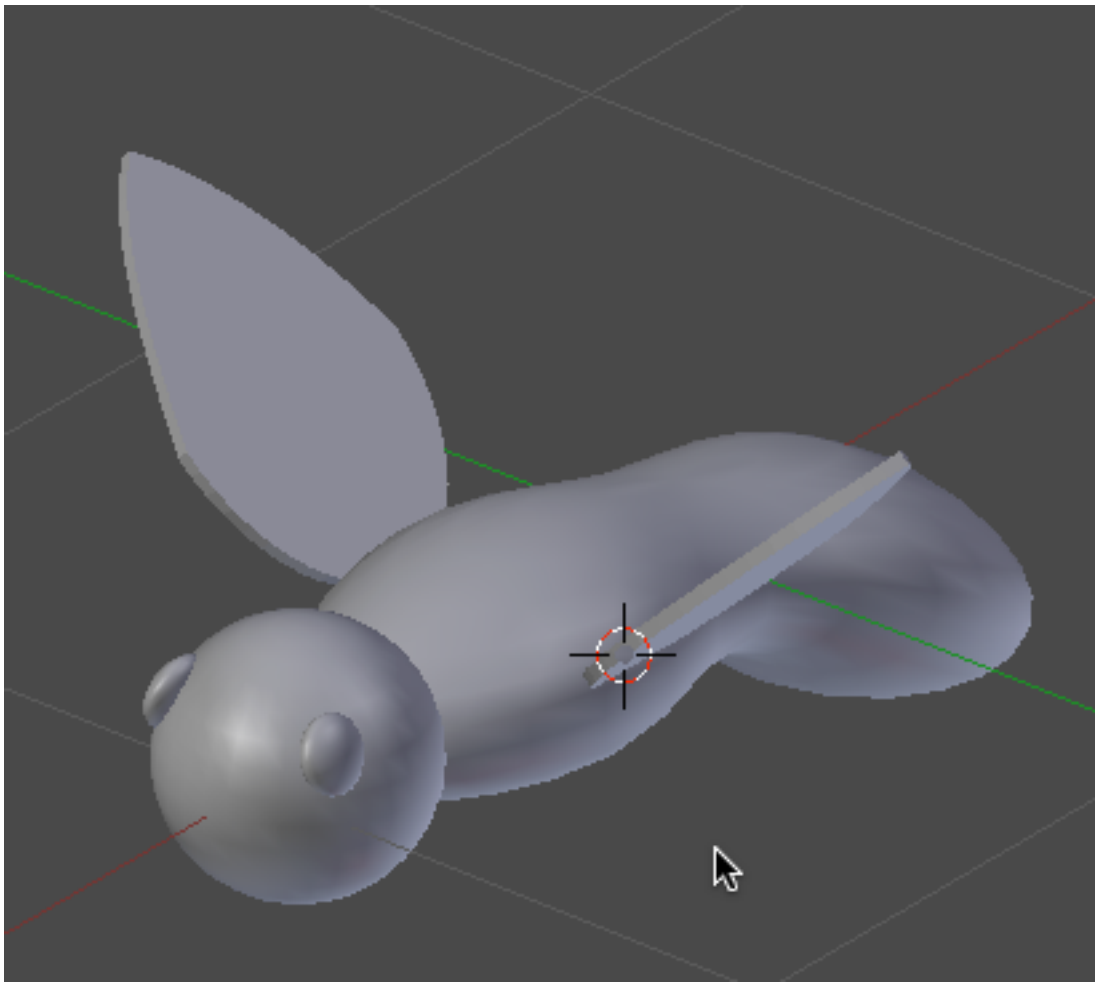
Select the BeeWing 2 object. Again TAB into edit mode, select the upper vertex, snap your 3D cursor to the vertex, TAB out of edit mode and set the origin to the 3D cursor.



Go to Right side view (CTRL-NUMPAD-3). Select the BeeWing1 object. In the properties panel set the X Rotation to 45

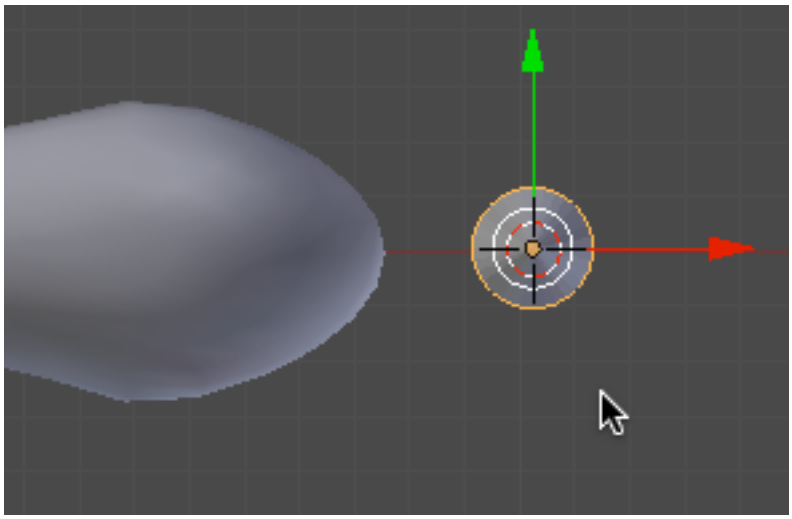


Select the BeeWing2 object. In the properties panel set the X rotation to 45.

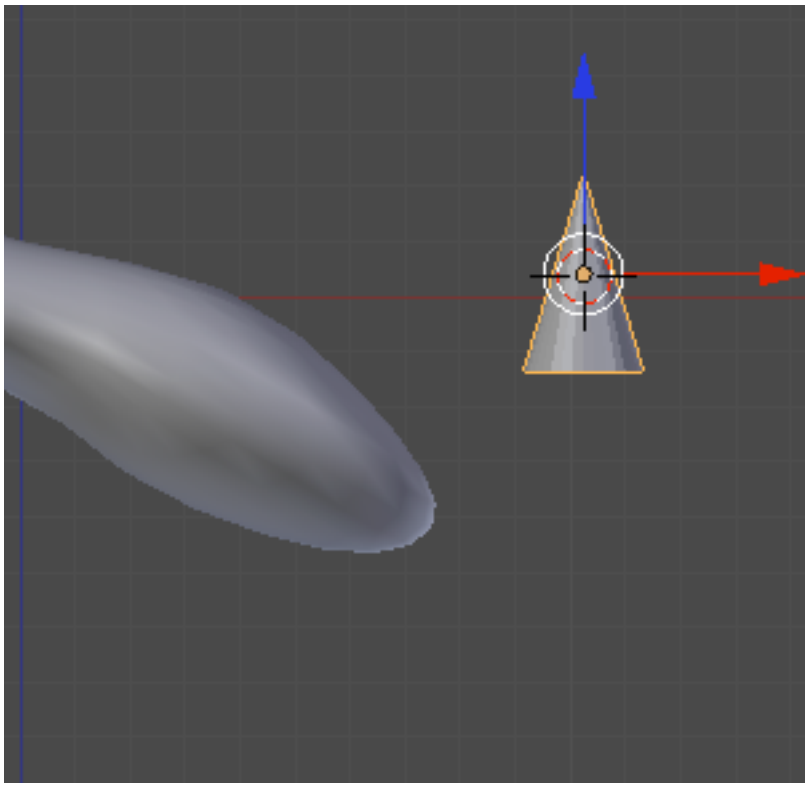


Save your Blend file.

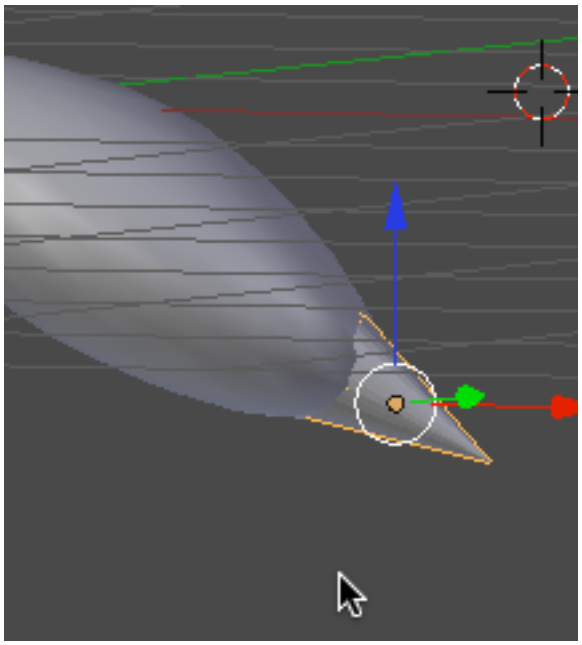
Switch to Top View (**NUM7**). Place your 3D cursor to the right of the Beebody and add a cone object. Scale the cone object as shown below.



Switch to Front View (**NUM1**). Scale the cone along the Z axis as shown.

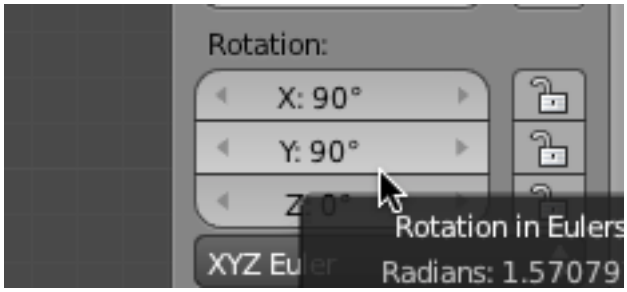


Name this object “Stinger” Rotate and position this Stinger object in the end of the BeeBody as shown below (Make sure you check the position from multiple views.

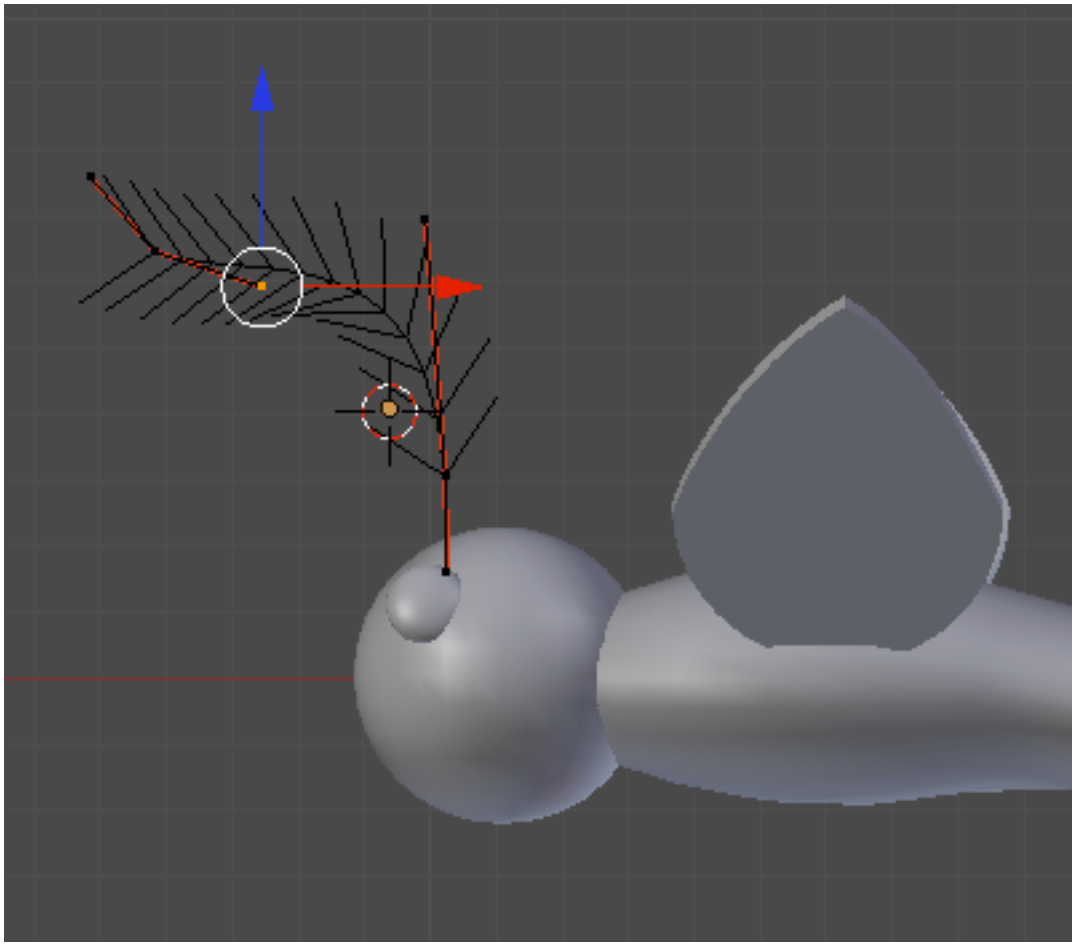


With the Stinger object selected, press the Smooth button.

Switch to Front View (NUM1). Place your 3D cursor above the beehead and add a Bezier curve object. Set the X Rotation to 90 and the Y Rotation to 90.

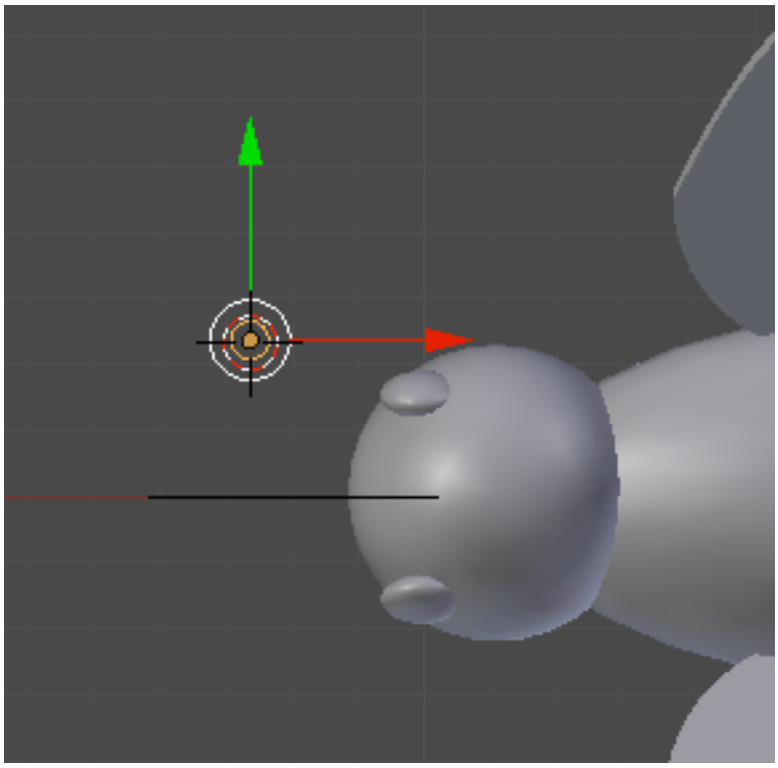


TAB into edit mode. Press the VKEY and select Free handles. Adjust the control vertices and handles to make an antennae shape as shown below. (Note you may have to also select all of the control points and handles in edit mode and scale them down.)



TAB out of edit mode. Name this object “Antenna1”.

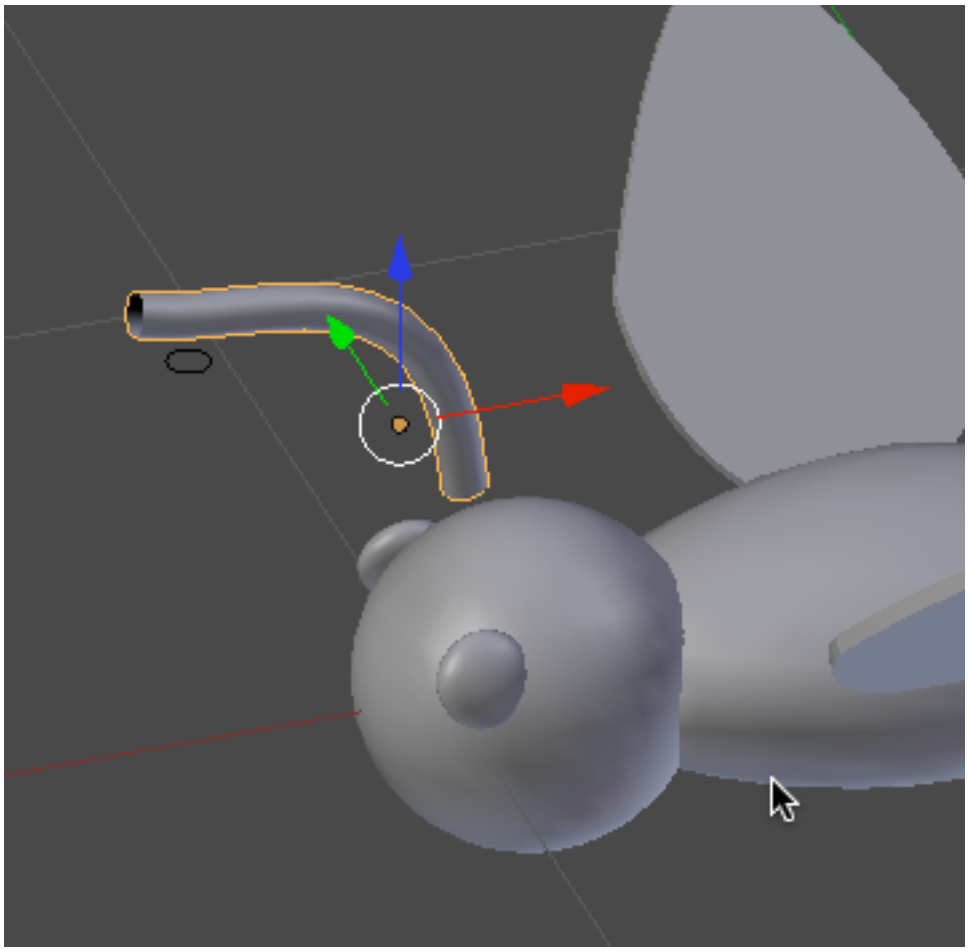
Switch to Top View (**NUM7**). Place your 3D cursor to the side of the Beehead and add a Bezier circle. Scale it down to a very small circle as shown.



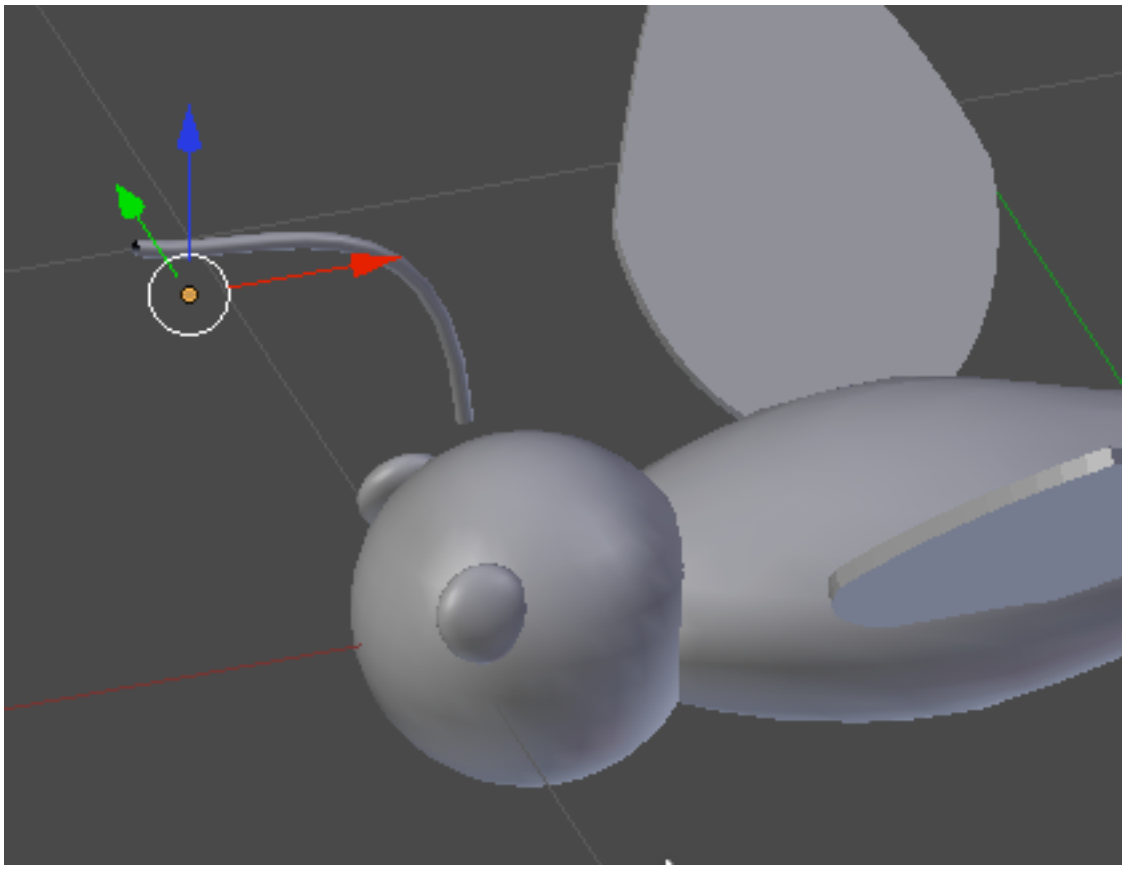
Name this object “C1”

Select the Antenna1 object. Go to the Object Data Editor. In the Geometry panel / Bevel Object box select the C1 object.

This bevels (lofts) the C1 object along the Antenna1 object.

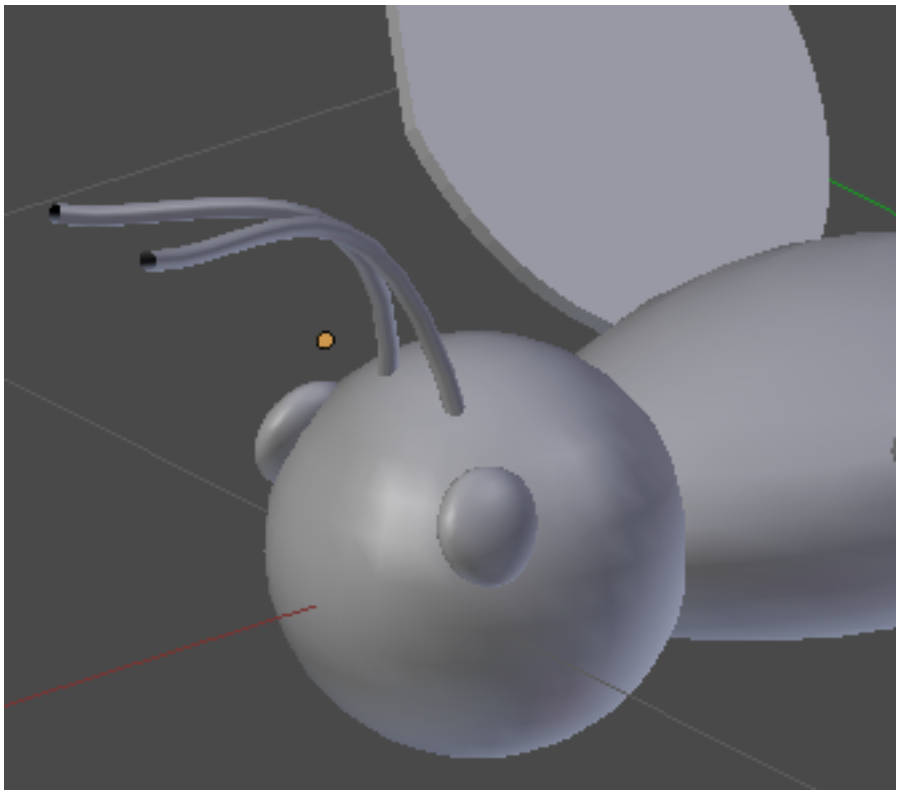


Select the C1 object and scale it down more so that the Antenna object looks something like shown below.

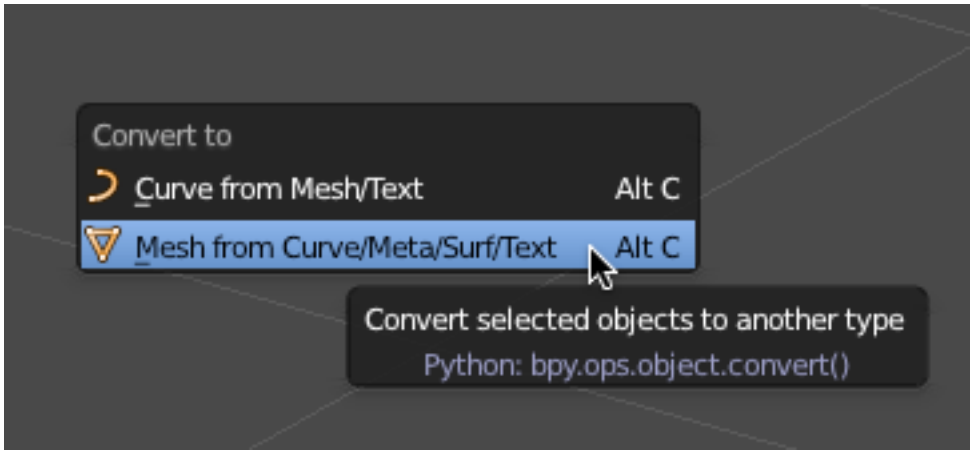


Select the Antenna1 object. Press SHIFT-D (duplicate) and move the duplicate to the side a bit. Name this duplicate object “Antenna2”

Position the 2 Antenna objects as shown below (make sure to check the position for multiple views). (I rotated mine a bit)

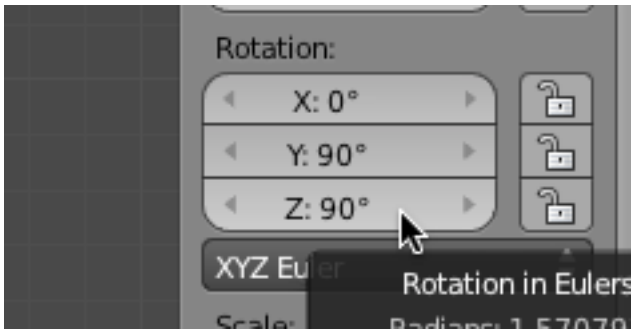


Select each antenna object and press ALT-C (Convert) and convert to Mesh from Curve.

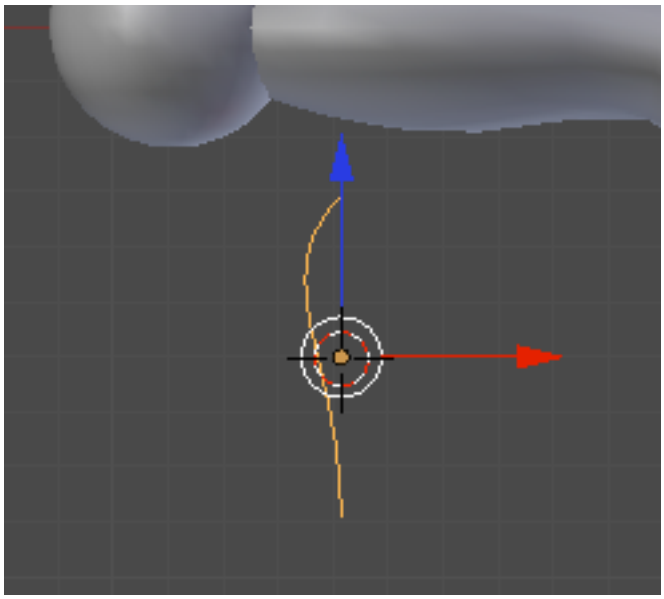


Smooth both objects. Save your Blend file.

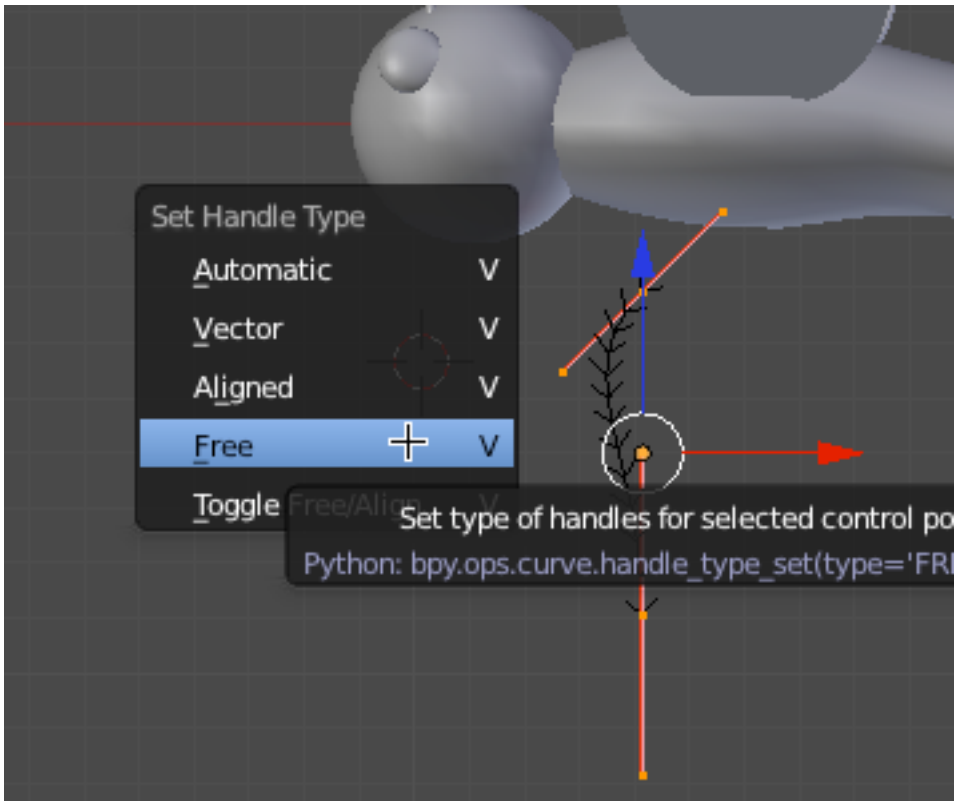
Switch to Front View (**NUM1**). Place your 3D cursor below the BeeBody and add another Bezier Curve. Set the Y Rotation to 90 and the Z Rotation to 90



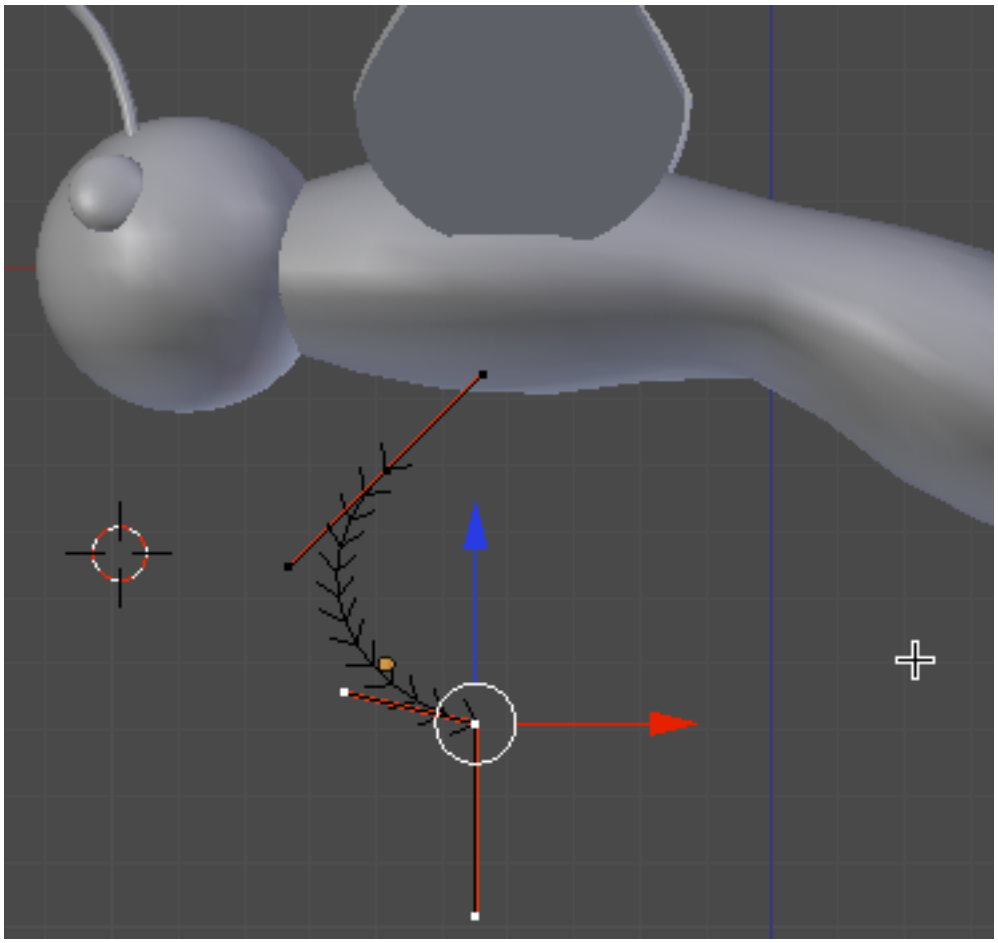
Still in object mode, scale down the Bezier curve object as shown below.



TAB into Edit mode. Press the VKEY and select Free handles

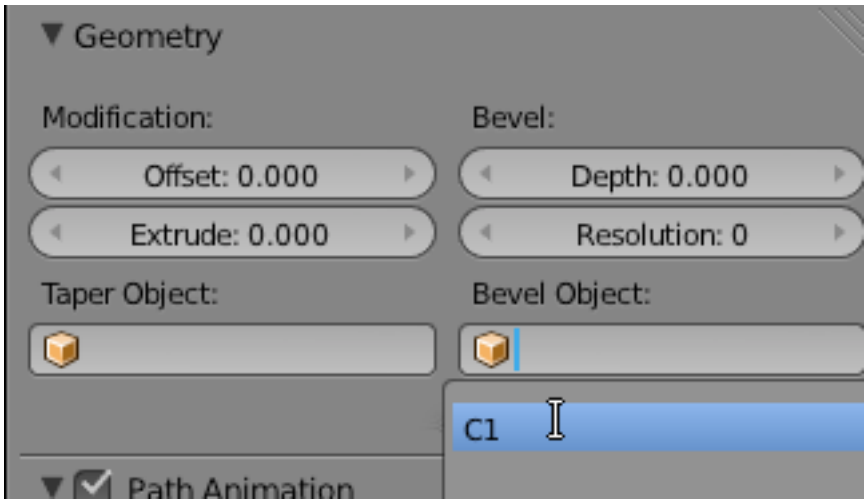


Adjust the curve vertex control points and handles to create a curve as shown below.



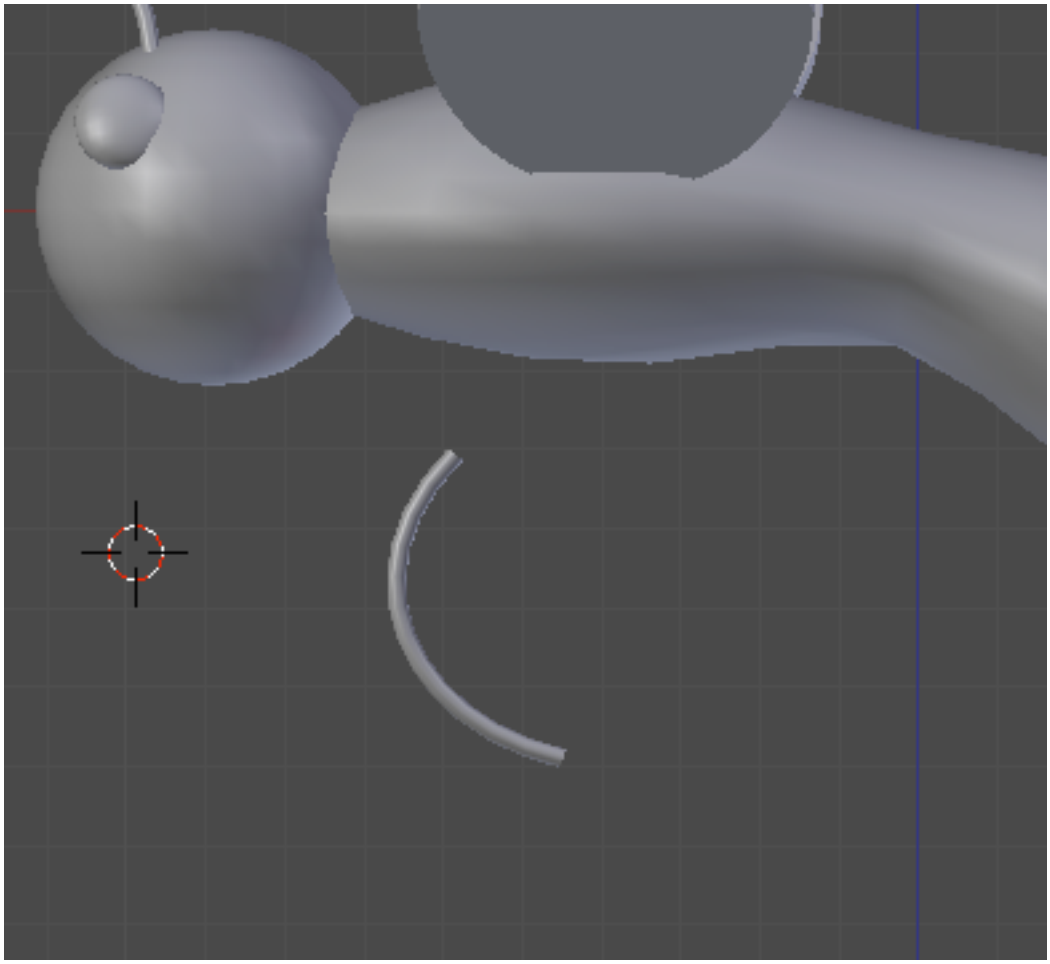
TAB out of edit mode. Name this object BeeLeg1.

Go to the Object Data Editor. In the Geometry panel / Bevel Object box select the C1 bezier circle object we created earlier.

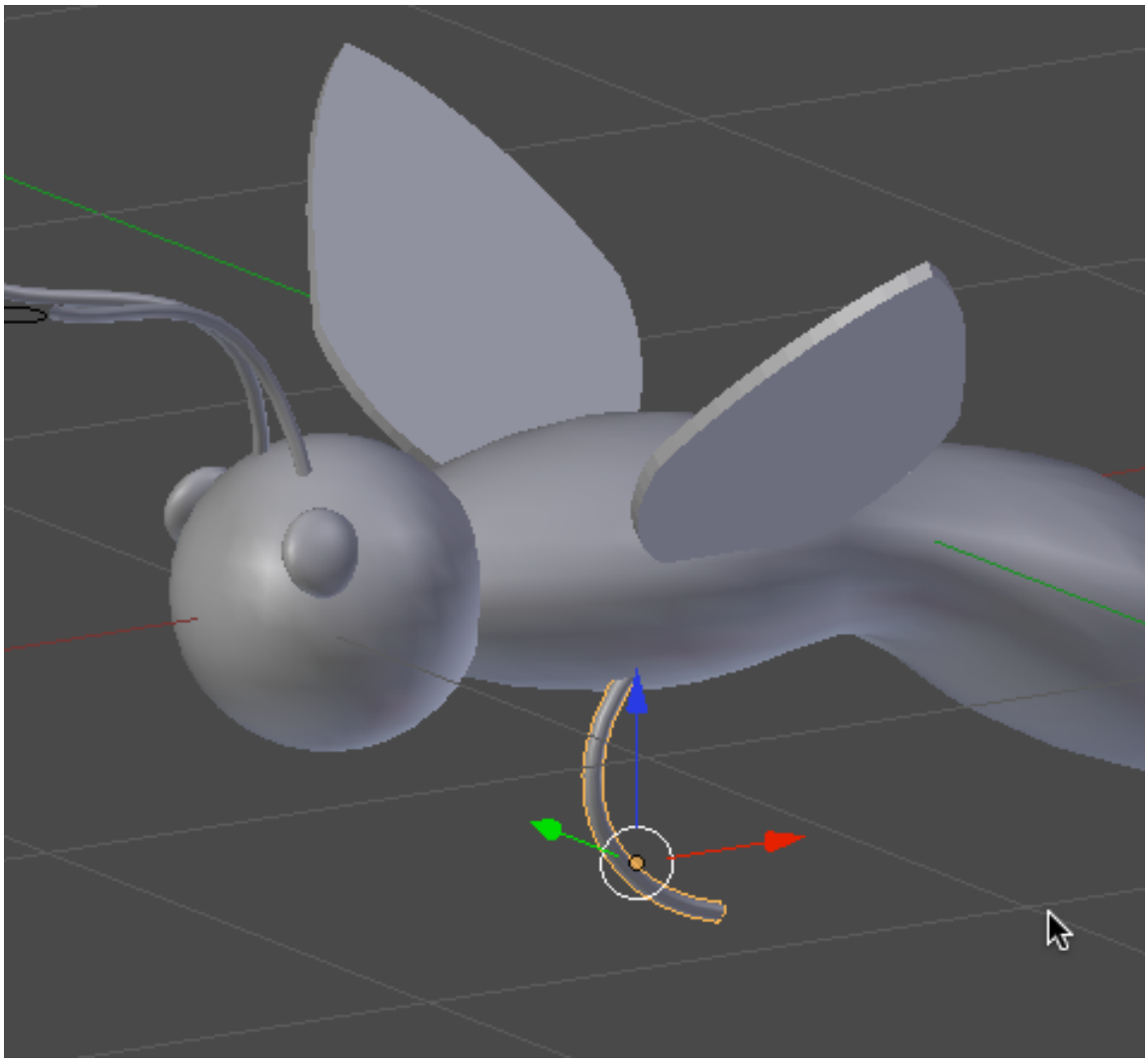


This will bevel (loft) the curve object along the BeeLeg1 object.

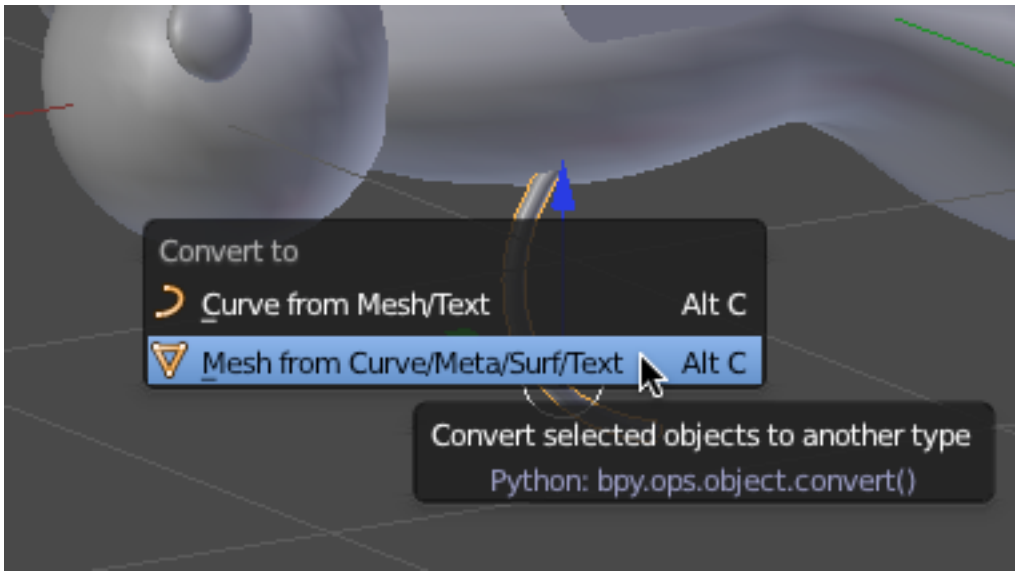
Select the C1 object. Scale it up so that the BeeLeg1 object looks something like shown below.



Move the BeeLeg1 object into the bottom of the BeeBody object as shown below (make sure to check this positioning in multiple views.)

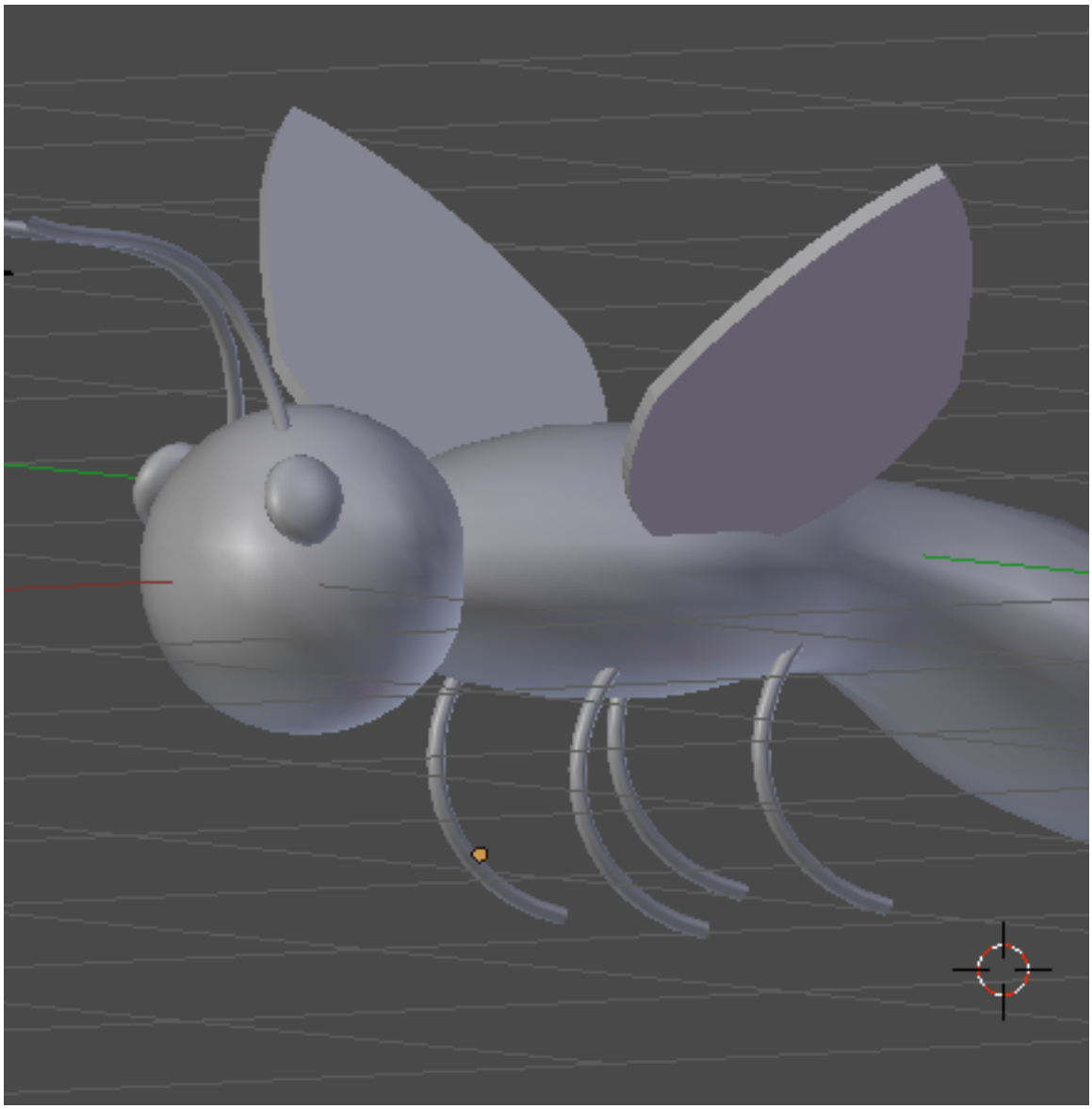


With the BeeLeg1 object selected, press ALT-C (convert) and convert to Mesh from Curve .



Using SHIFT-D (duplicate), make three duplicate objects. Name them BeeLeg2, BeeLeg3 and BeeLeg4.

Position then under the BeeBody object as shown below. (check your positioning from multiple views)

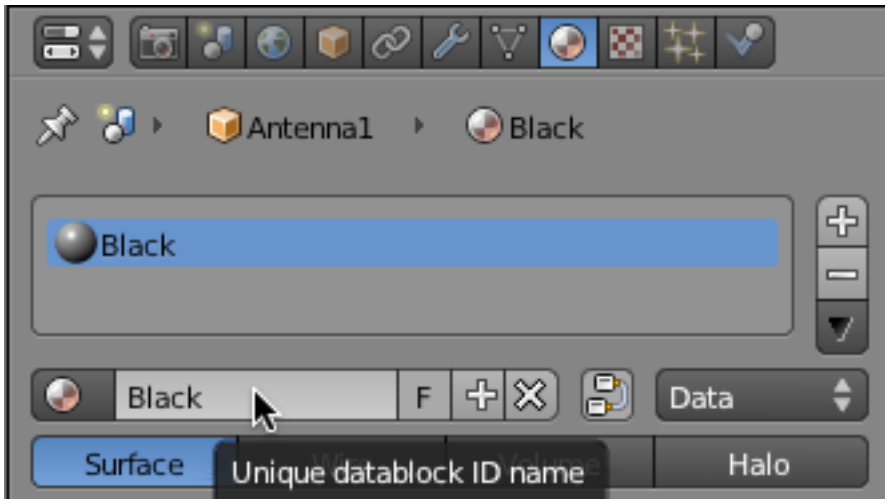


Select each BeeLeg object and press the Smooth button.

Save your Blend file.

Materials:

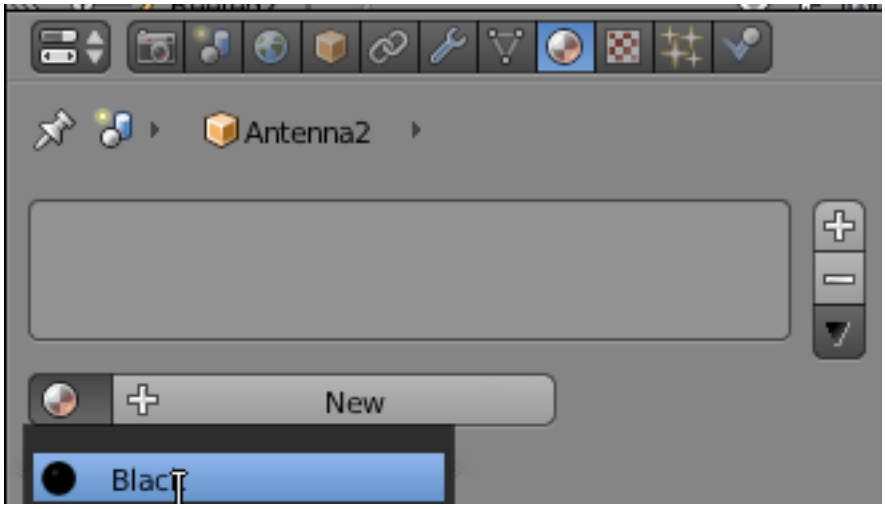
Select the Antenna1 object. Go to the Material editor. Press New and name this material Black.



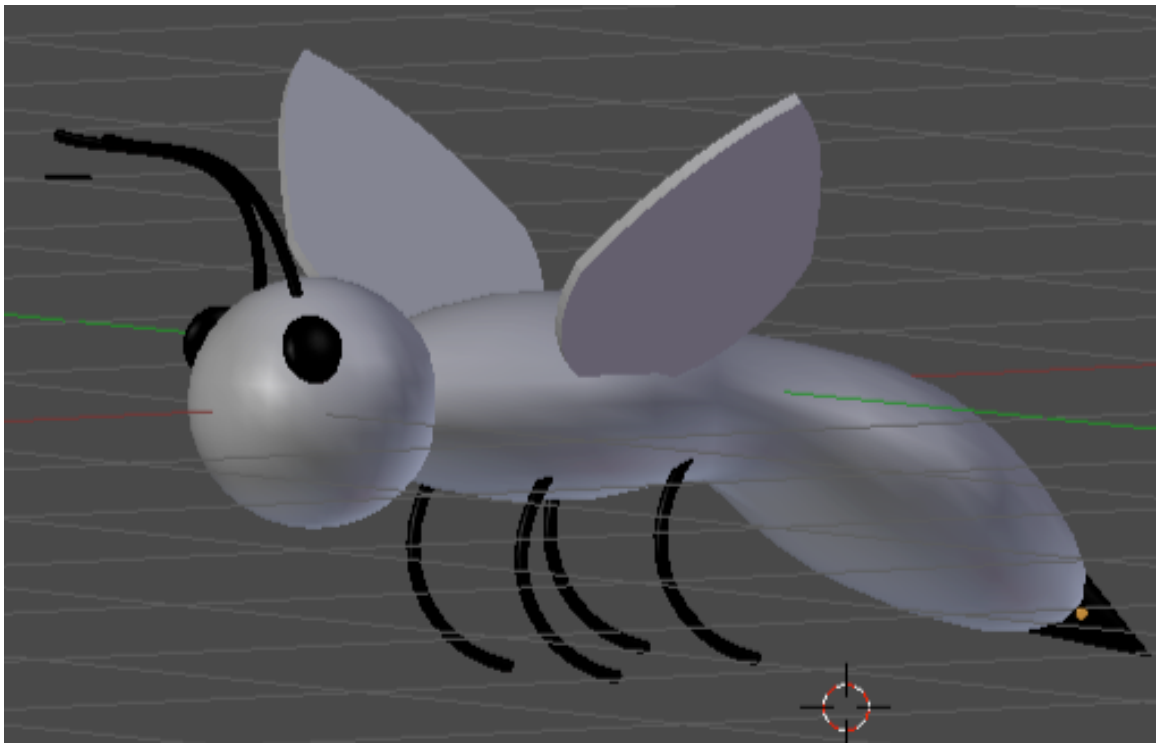
Click on the diffuse color swatch and set the color sliders to R= 0, G= 0 and B=0

In the Specular panel, set the Intensity down to .155

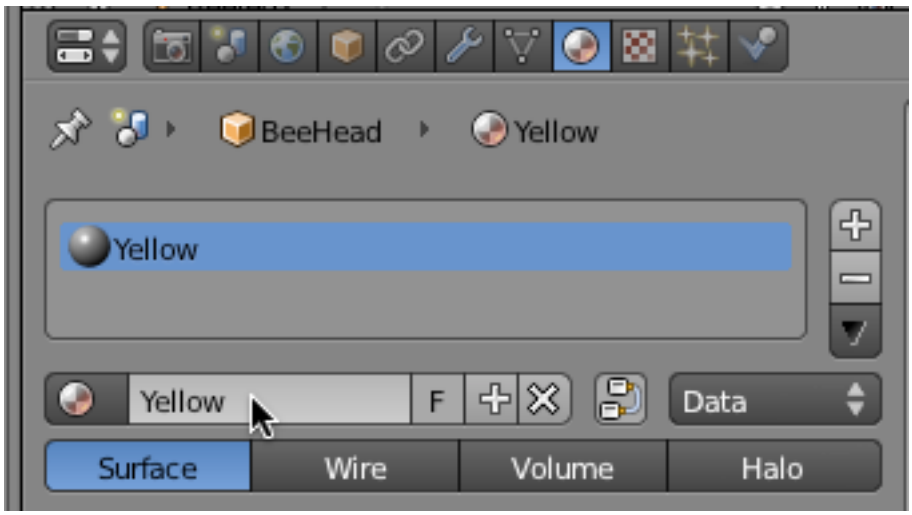
Select the Antenna2 object. Go to the material editor. Click on the Browse material button to the left of the New button. Select the Black material.



Assign this same Black material to the BeeLeg objects, BeeEye objects and the Stinger object.

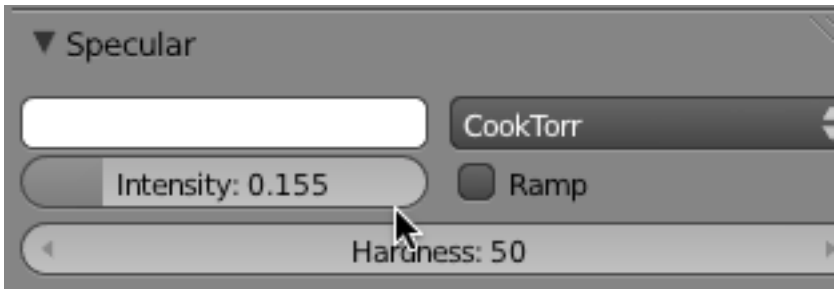


Select the BeeHead object. Go to the Materials editor. Press the New button and name this material “Yellow”.



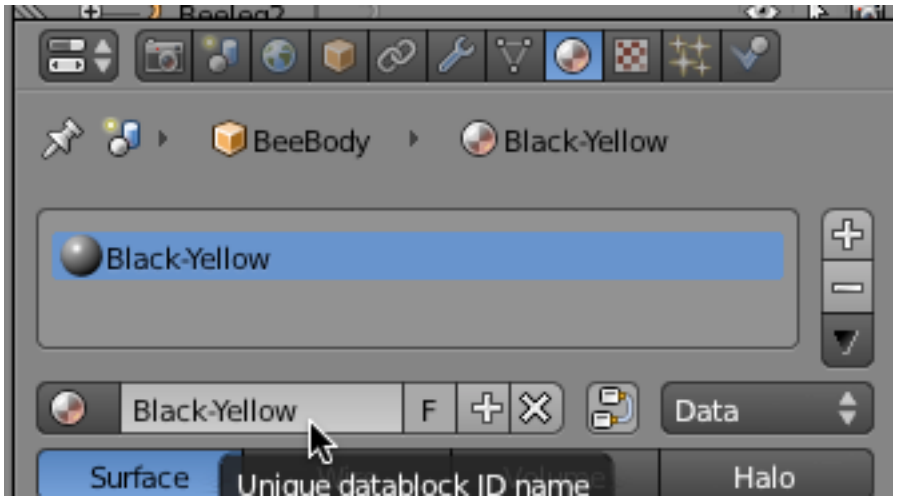
Click on the diffuse color swatch and set the color sliders to R= .8, G= .8 and B= .05

In the Specular panel, set the intensity slider down to .155

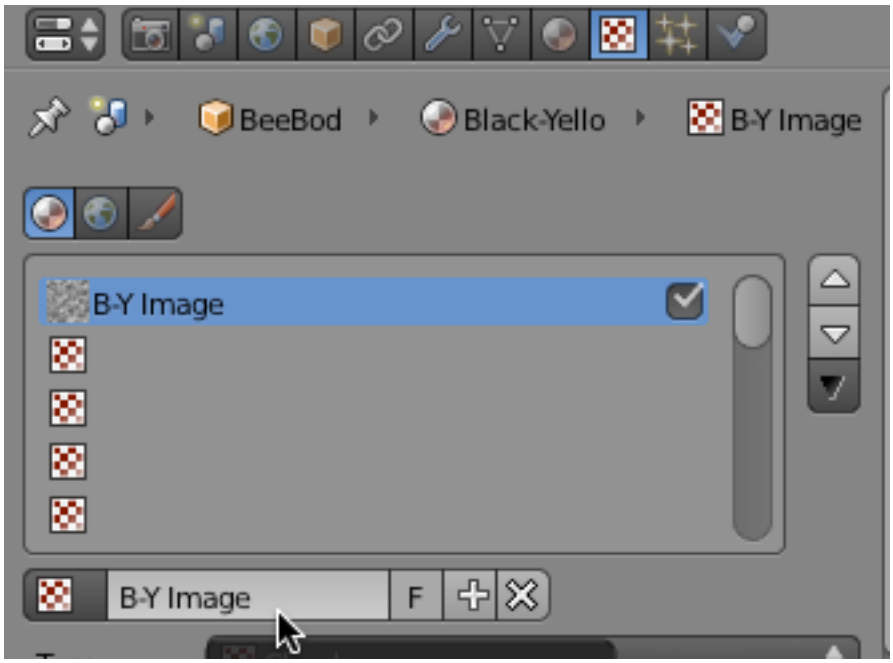


We will now add a material to the BeeBody and BeeWing objects. We will be using 2 image files as textures named “black_yellow.jpg” and “beewing.jpg”. These image files can be downloaded HERE.

Select the BeeBody object. Go to the Material editor. Press the New button and name this material Black-Yellow.

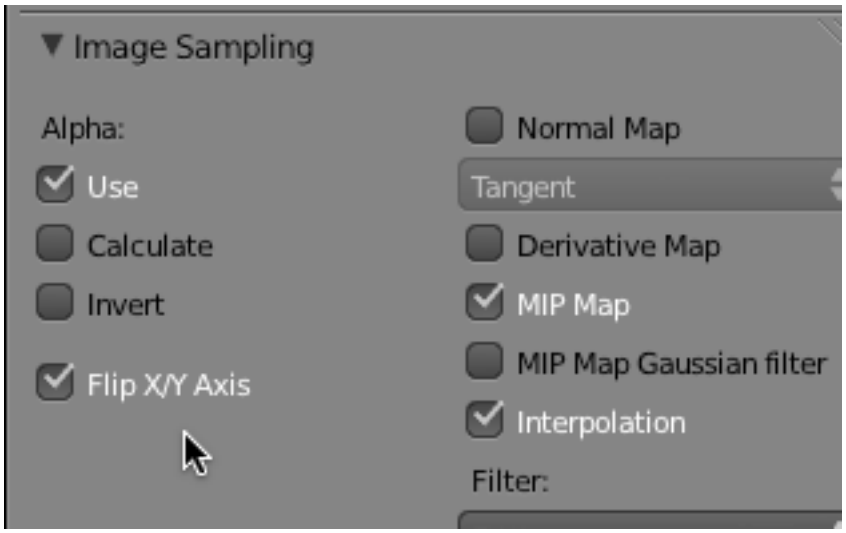


Go to the Texture editor. Click New. Name this Texture “B-Y Image”.

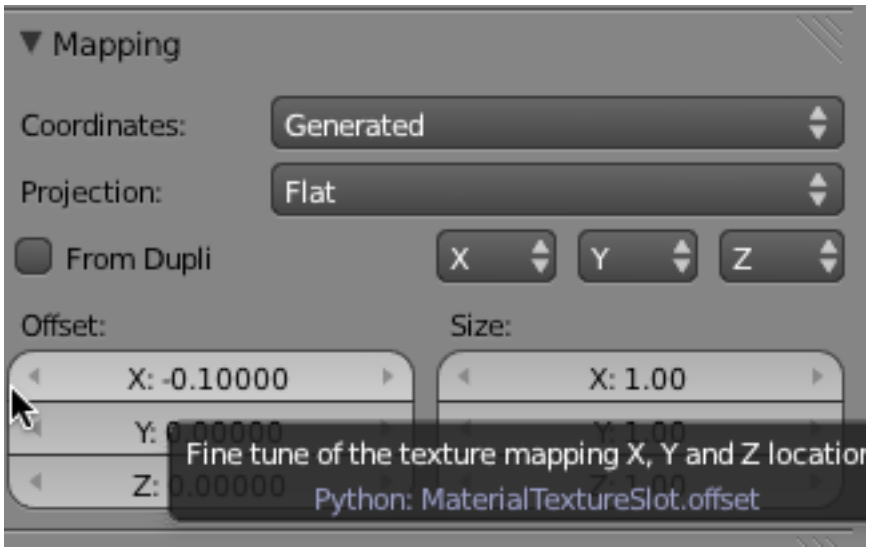


Change the Type to Image or Movie. Click on the Open button and locate the black_yellow.jpg image file on your computer and select it. Click on the Open Image button.

In the Image Sampling panel, checkmark Flip X/Y axis.

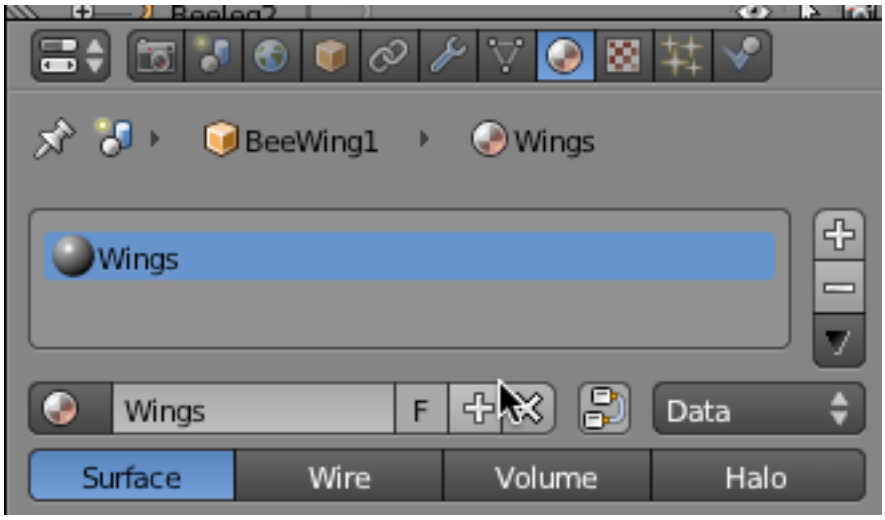


In the Mapping panel, set the X offset to -.1

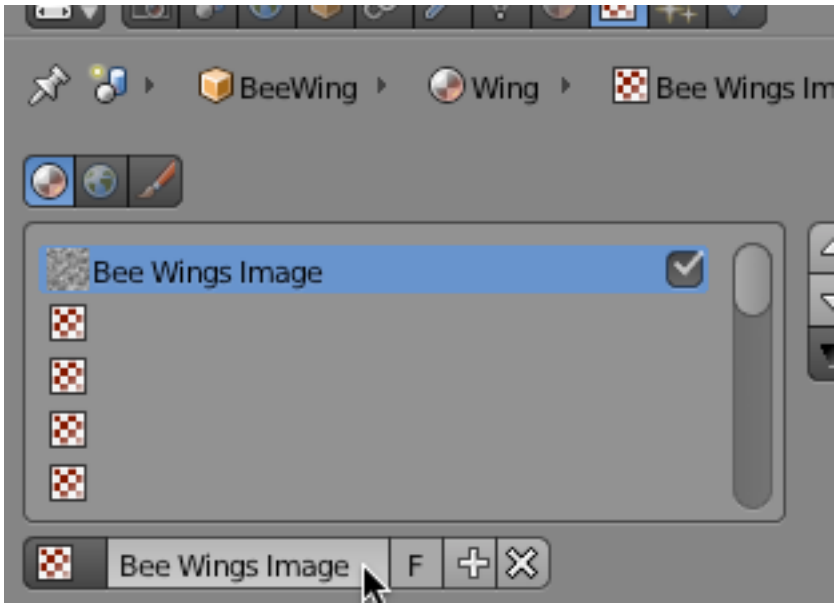


Go to the Materials editor. Set the Specular Intensity to .155

Select the BeeWing1 object. Go to the Materials editor. Press New. Name this new material “Wings”

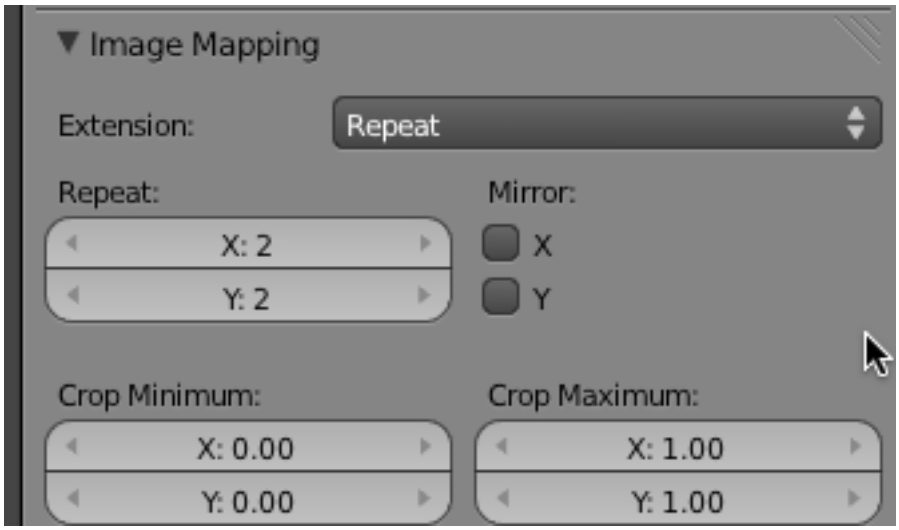


Go to the Texture Editor. Press New and name the texture “Bee Wings Image”

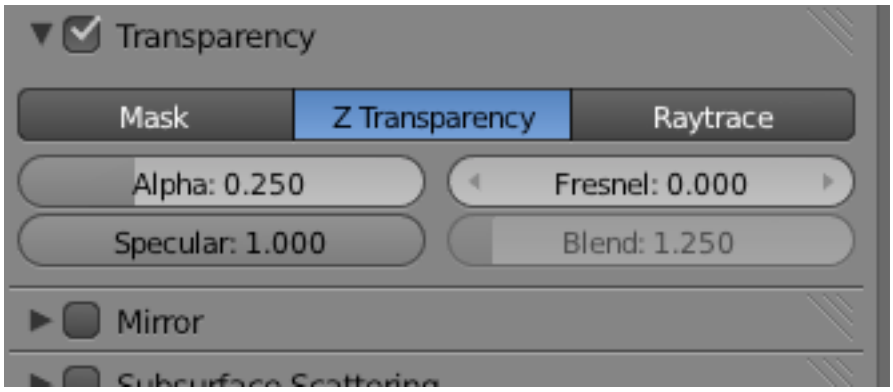


Change the Type to Image or Movie. Press the Open button. Locate the beewing.jpg on your computer and select it. Press Open Image.

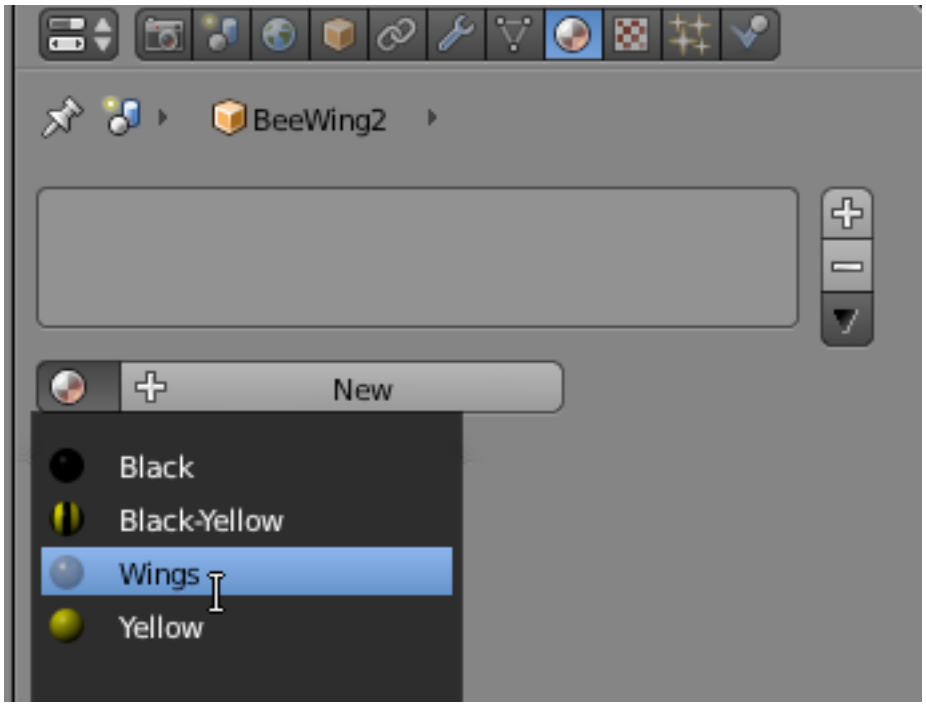
In the Image Mapping panel, set the X and Y Repeat to 2.



Go back to the Materials editor. Checkmark the Transparency checkbox and set the Alpha slider at .25



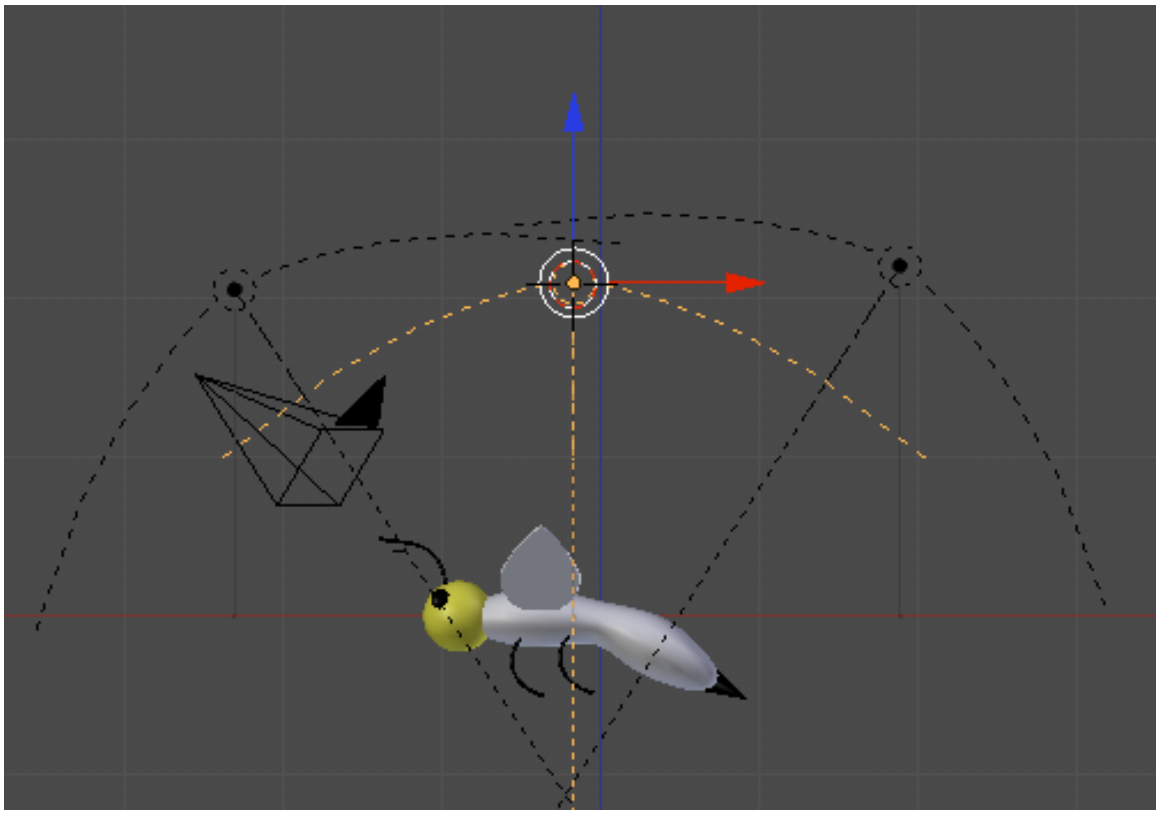
Select the BeeWing2 object. Go to the material editor. Press the Browse material button to the left of the New button and select the Wings material.



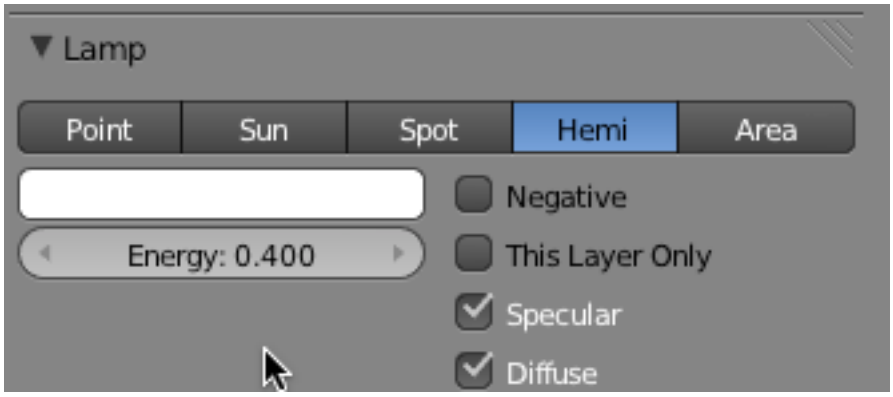
Lighting:

Go to front view. Select the default point lamp and delete it.

Add 3 Hemi lamps and rotate them as shown below.

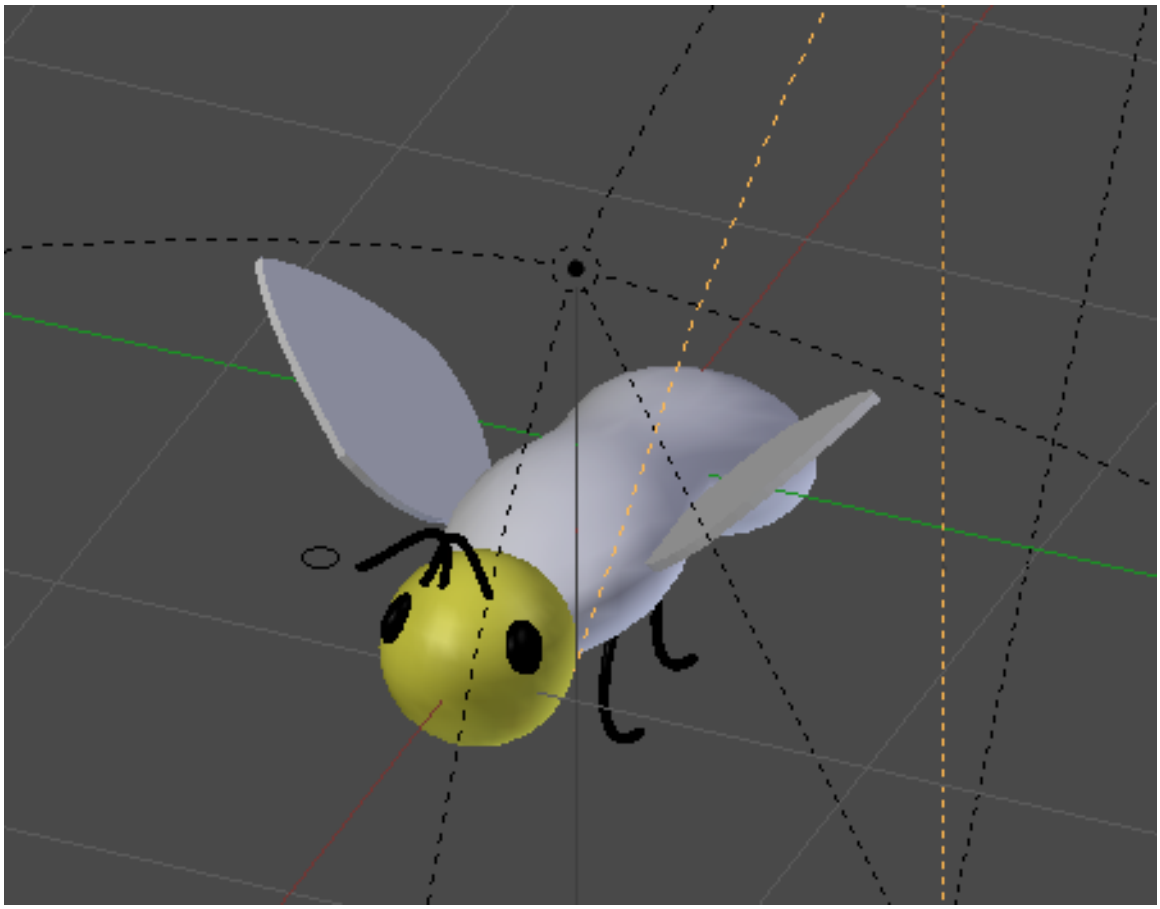


Select each lamp object and go to the Object Data Editor and set the lamp's intensity to .4

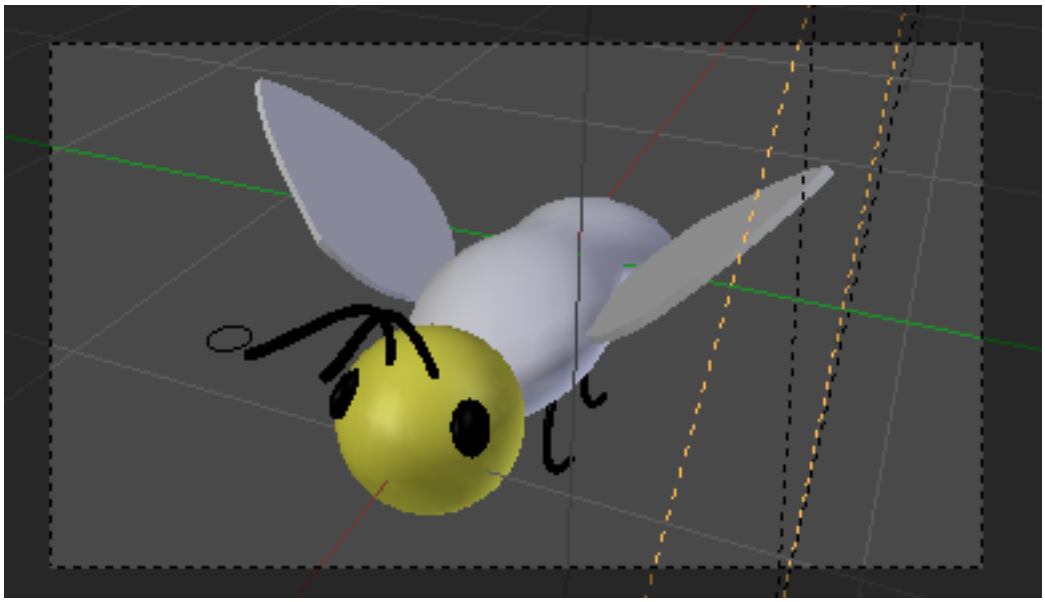


Camera:

Rotate your 3D Viewport display to provide a nice 3D view of the Bee.



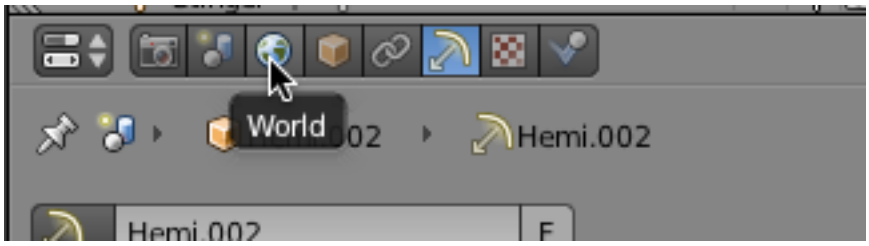
Press CTRL-ALT-NUMPAD-0 (align camera to view). His will align the Blender camera to your 3D view.



Note: you may have to go back and forth to get the camera view you want. NUMPAD-0 will always show you the camera view. You may have to move or rotate the camera object itself to get the view you want.

World:

Go to the World Editor.



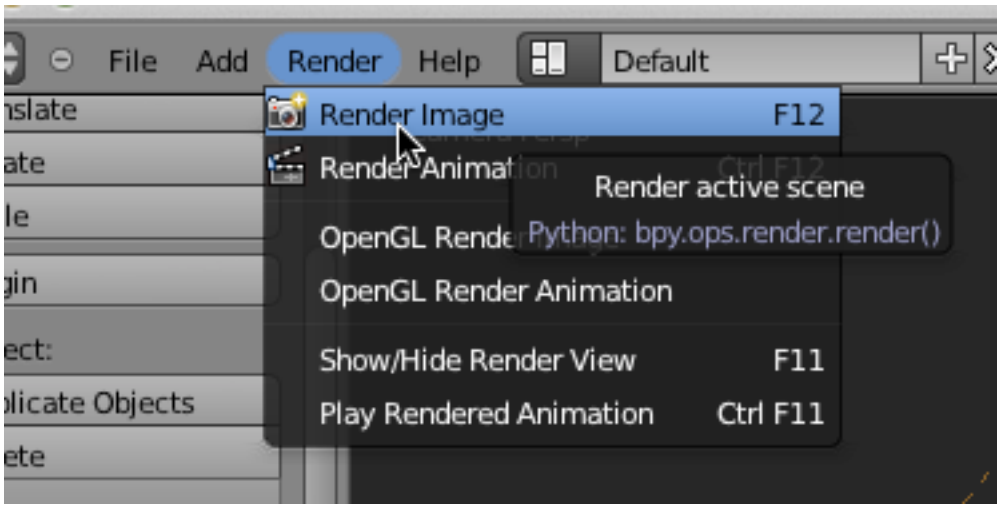
Checkmark Blend Sky.

Click on the Horizon color swatch and set the color sliders to R= 0, G=0 and B=1

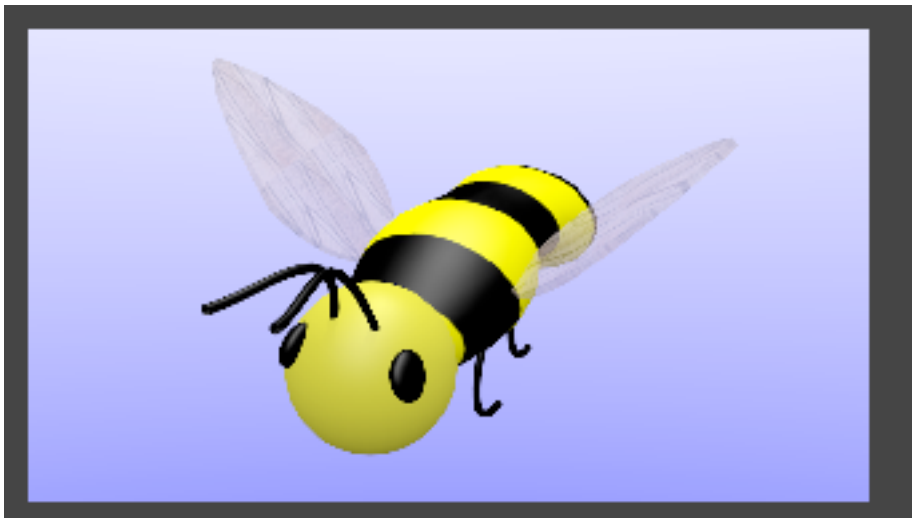
Click on the Zenith color swatch and set the color sliders to R=1, G=1, and B=1

Render:

Press the Render button at the top of the 3D viewport and select Render Image.



This renders the scene in Blender's UV Image Editor.



Press ESC (escape) to return to the 3D viewport.

Save your Blend file.

We now have a simple (and cartoonish) bee model. We want to do two things with the Bee:

-Animate the wings so they flap up and down.

-Assign the Bee as a Blender Particle so that we can create a swarm of wing-flapping bees.

The challenge posed here is that although it would be relatively easy to animate each wing object, to assign an object as a Blender particle, the object must be one mesh.

Thus we have to first join all of our objects into one mesh and then animate the wing vertices (rather than the wing objects).

Joining:

Select the Antenna1 object. Hold down your SHIFT KEY and add the Anntenna2, then BeeEye1, then BeeEye2, then BeeLeg1, then BeeLeg2, then BeeLeg3, then BeeLeg4, then Stinger, then BeeHead, then BeeWing1, then BeeWing2 and LAST, BeeBody.

Press CTRL-J (join). The objects are all joined together as one object named BeeBody.

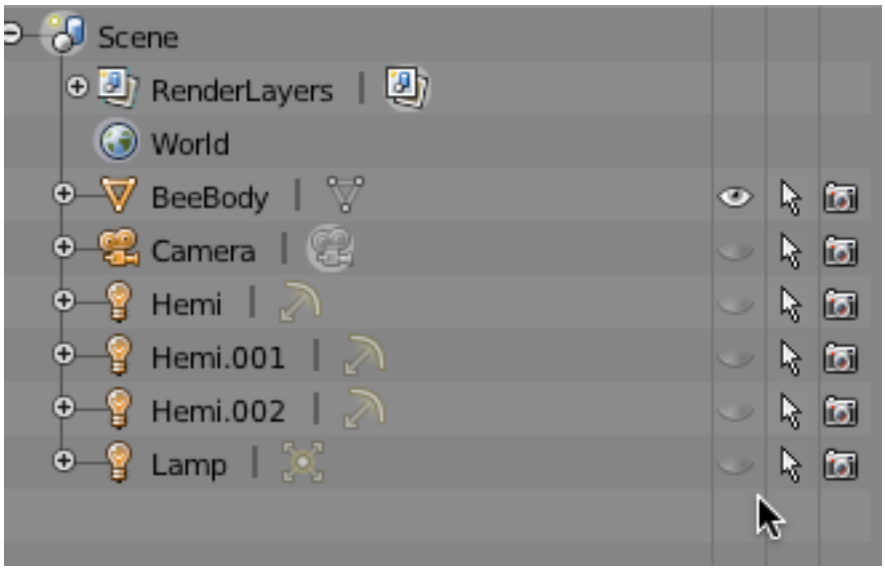
(NOTE: If for some reason the BeeLegs or the Antenna objects do not “join” the BeeBody, it is because you have not converted these objects from a curve object to a mesh object. If that is the case, select the object and press ALT-C (convert).)

Save your Blend file.

Cleanup:

Select the C1 curve object and delete it (we no longer need it as all the curve objects have been converted to meshes).

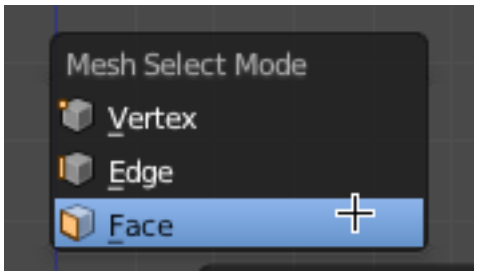
In the Outliner Window panel, hide the lamp and camera objects by clicking on the "eye" icon. This will make selecting easier.



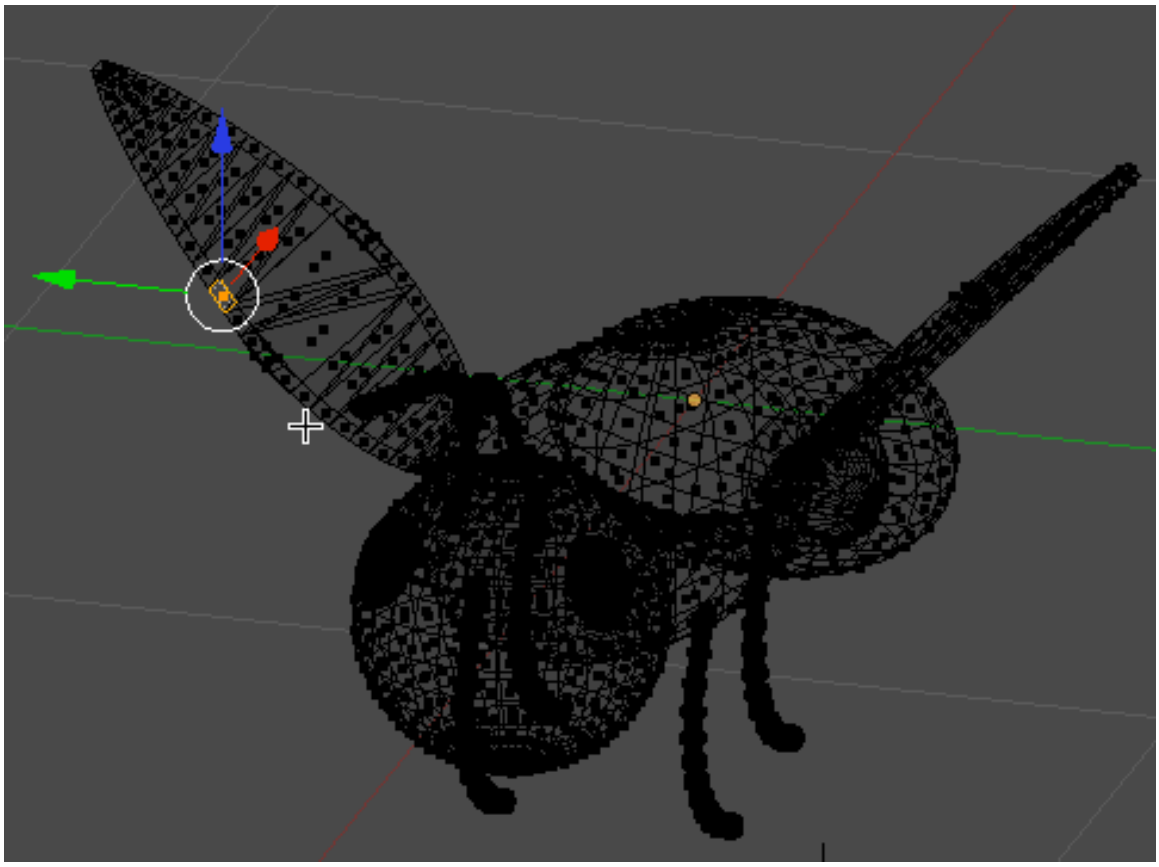
Wing Animation:

First, let's isolate the wing vertices as Vertex Groups. Go to Right Side View (CTRL-NUMPAD-3).

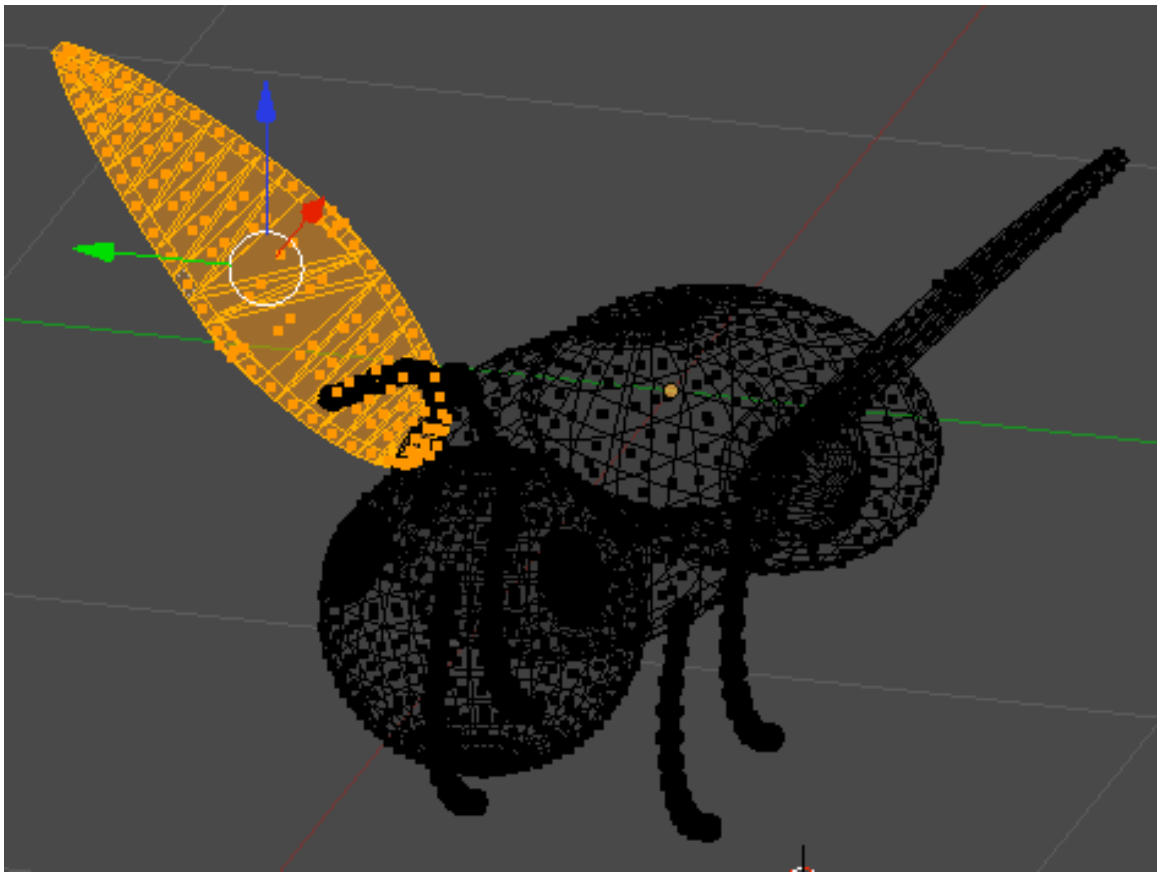
Go to Wireframe mode. Select the BeeBody object and TAB into Edit mode. Deselect any vertices. Go to Face Select mode (CTRL-TAB).



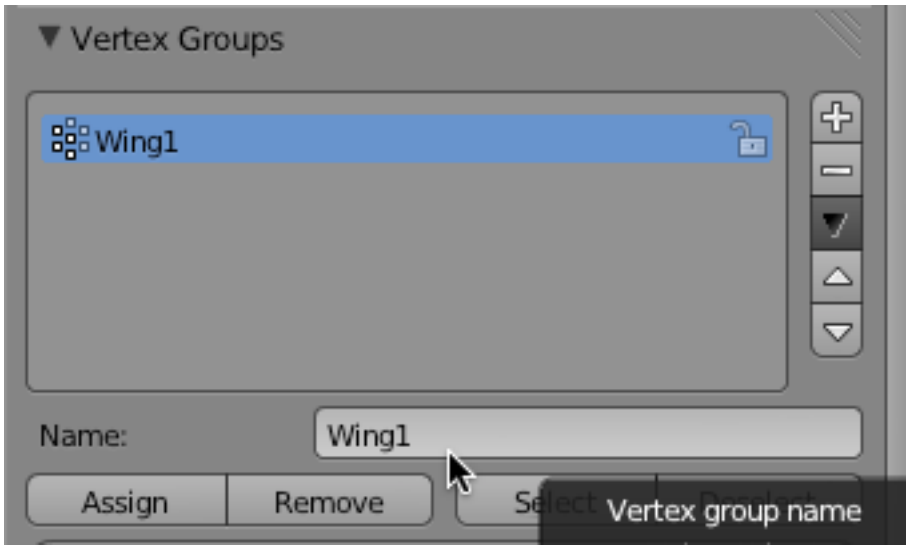
Rotate your view a bit so yu can see the model more dimensionally. Select one of the left wing faces as shown below.



Press CTRL-L (select linked). This will select all of the left wing faces.

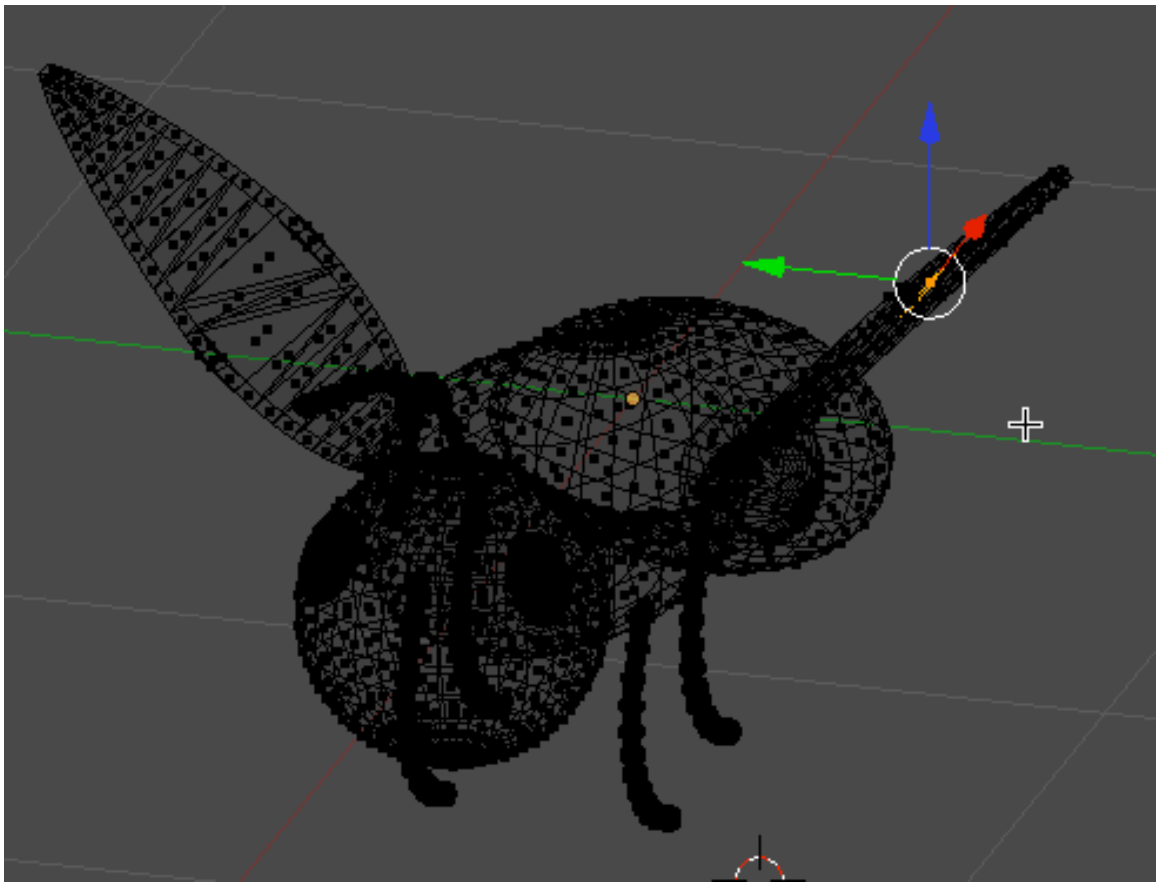


Go to the Object Data Editor. Click o n the Plus Sign (+) in the Vertex Group panel. Name this vertex Group “Wing1”

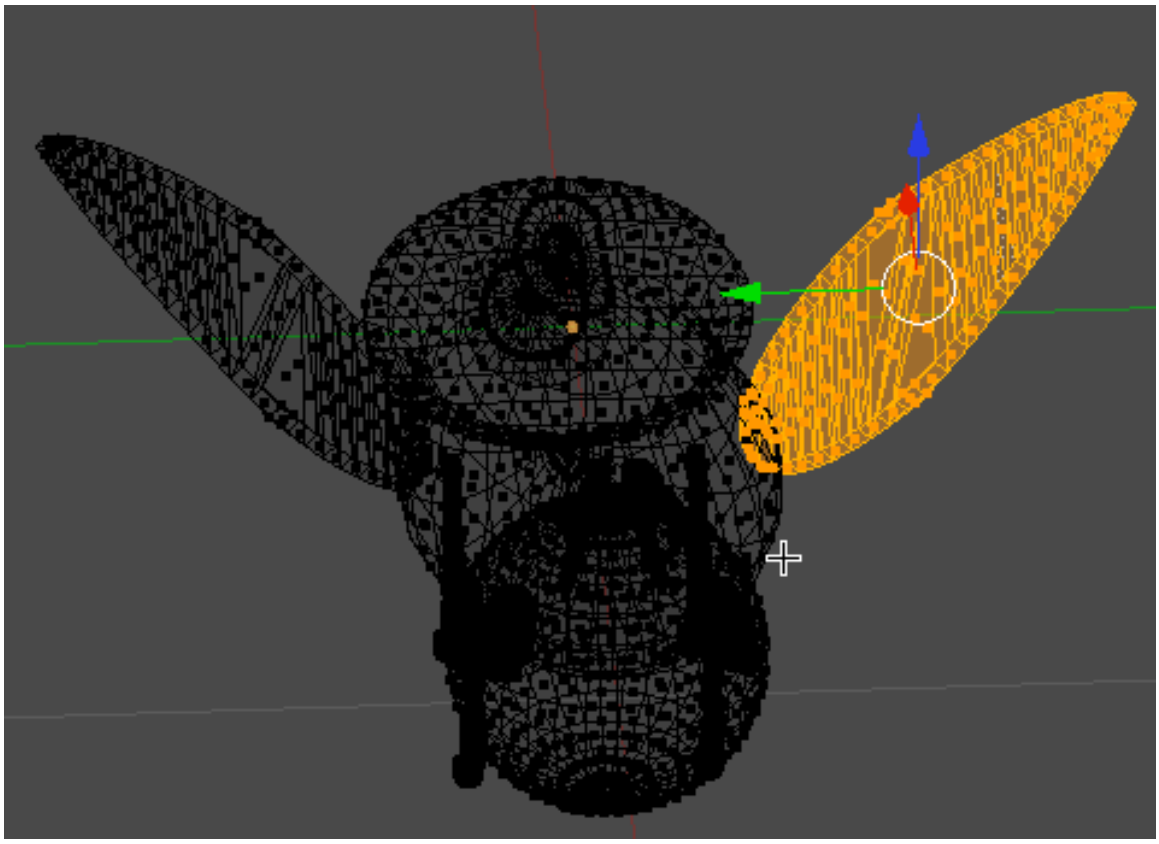


Click on the Assign Button. This will assign the selected vertices to the Wing1 Vertex group. You can click on the Deselect button to deselect them. From now on, clicking on the Select button will always select this vertex group.

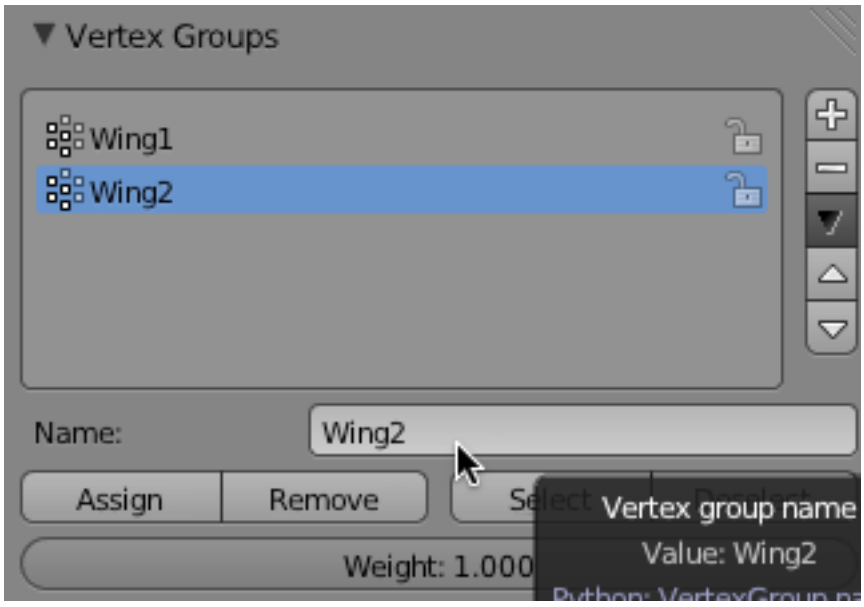
Select one of the faces on the other wing as shown below.



Press CTRL-L (select linked). This will select the faces for the whole wing.



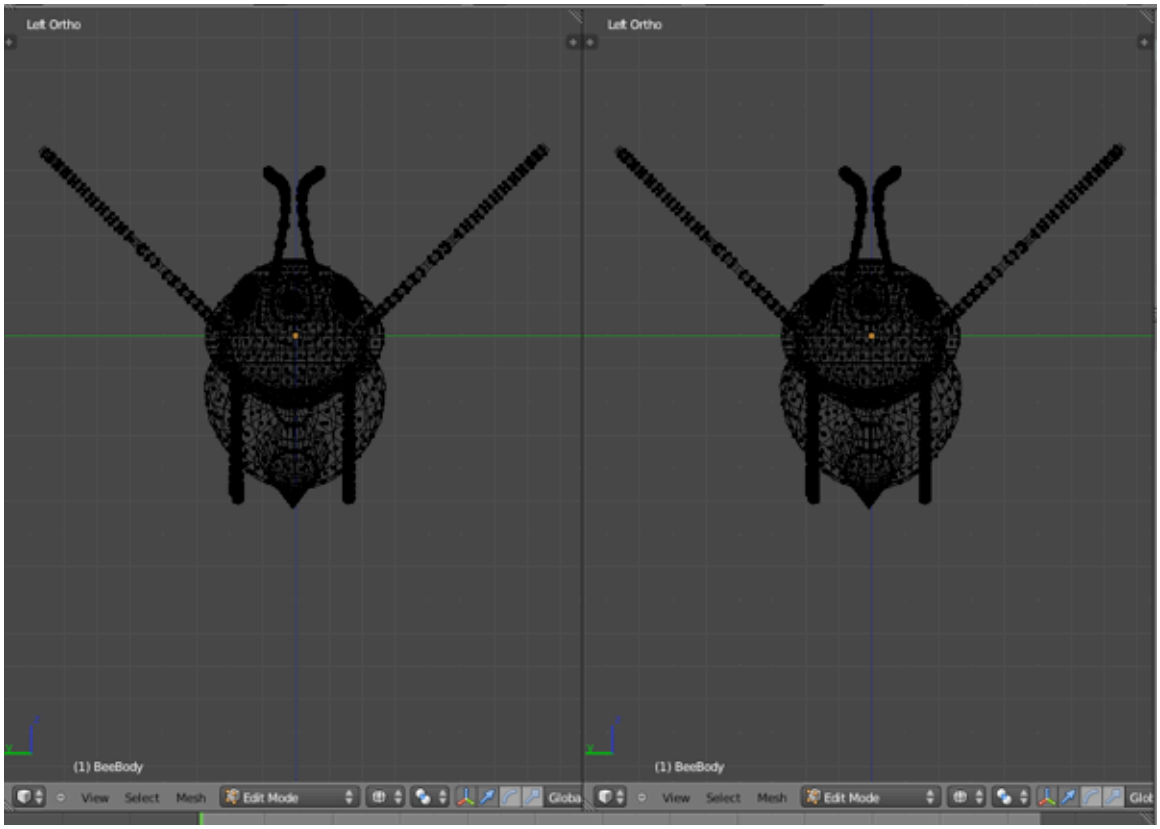
Go to the Object Data Editor. Click on the Plus Sign (+) in the Vertex Group panel. Name this vertex Group “Wing2”



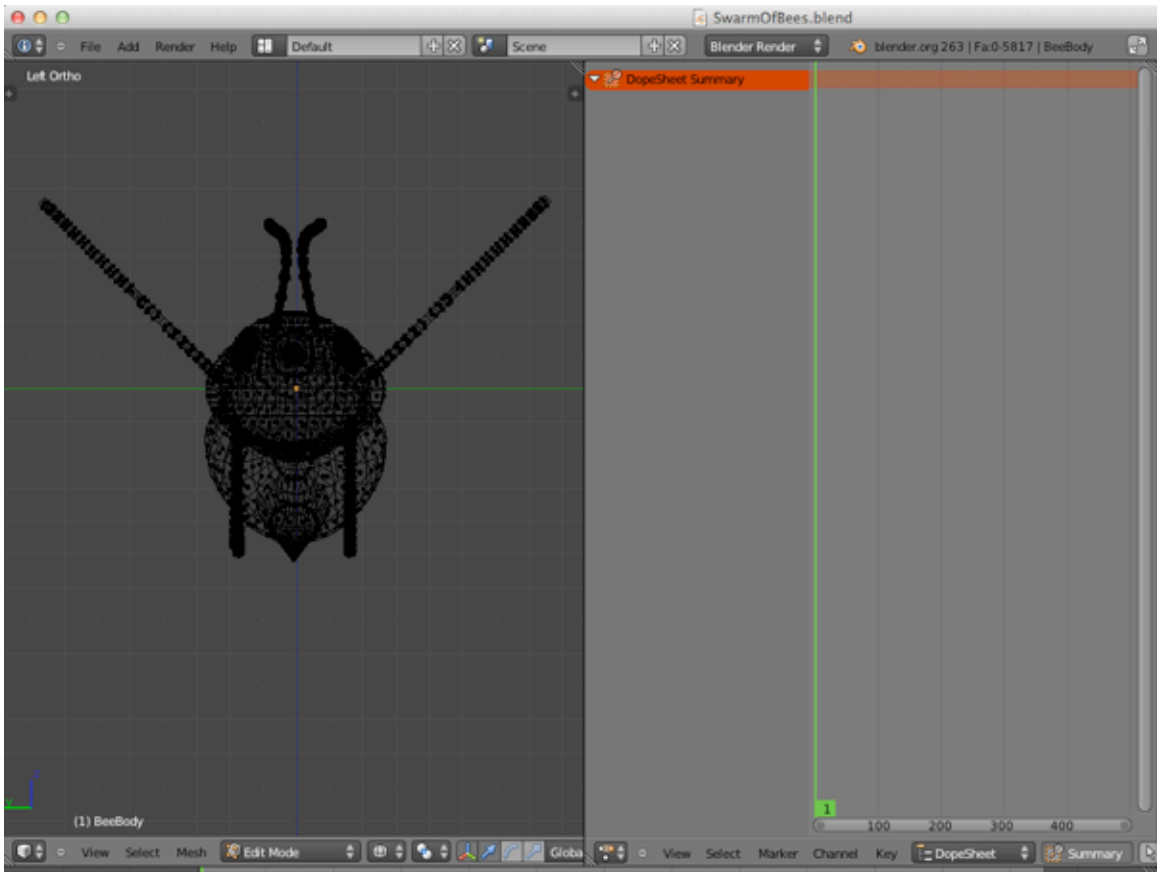
Click on the Assign Button. This will assign the selected vertices to the Wing2 Vertex group. You can click on the Deselect button to deselect them. From now on, clicking on the Select button will always select this vertex group.

Save your Blend file.

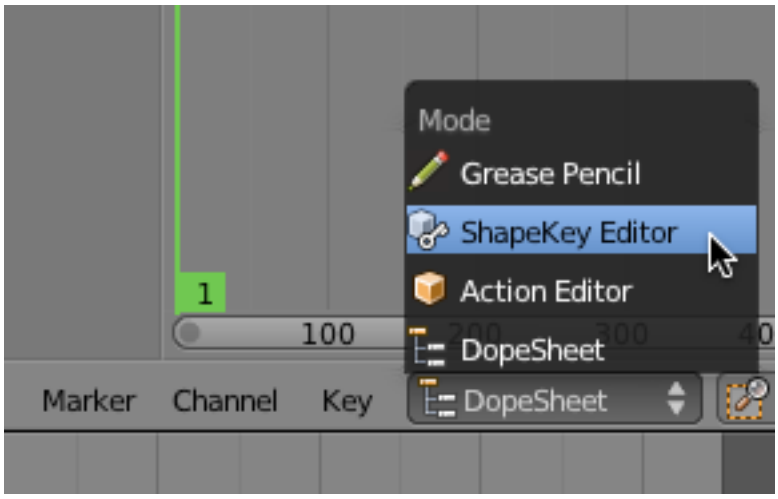
Go to Right Side View (CTRL-NUMPAD-3). Split your 3D Viewport into 2 Windows. (In each window press the NKEY and the TKEY to close the Tools and Properties panels).



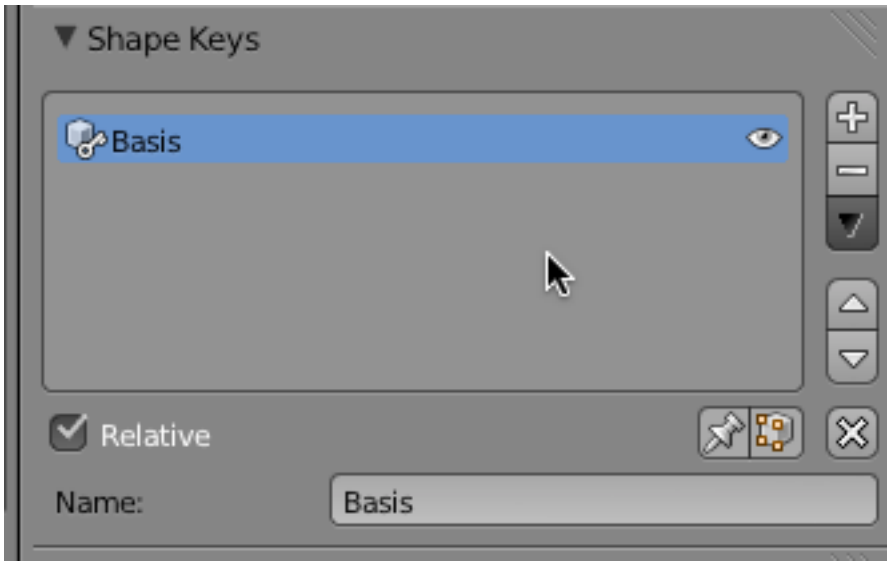
Change the right window to the Dope Sheet Window.



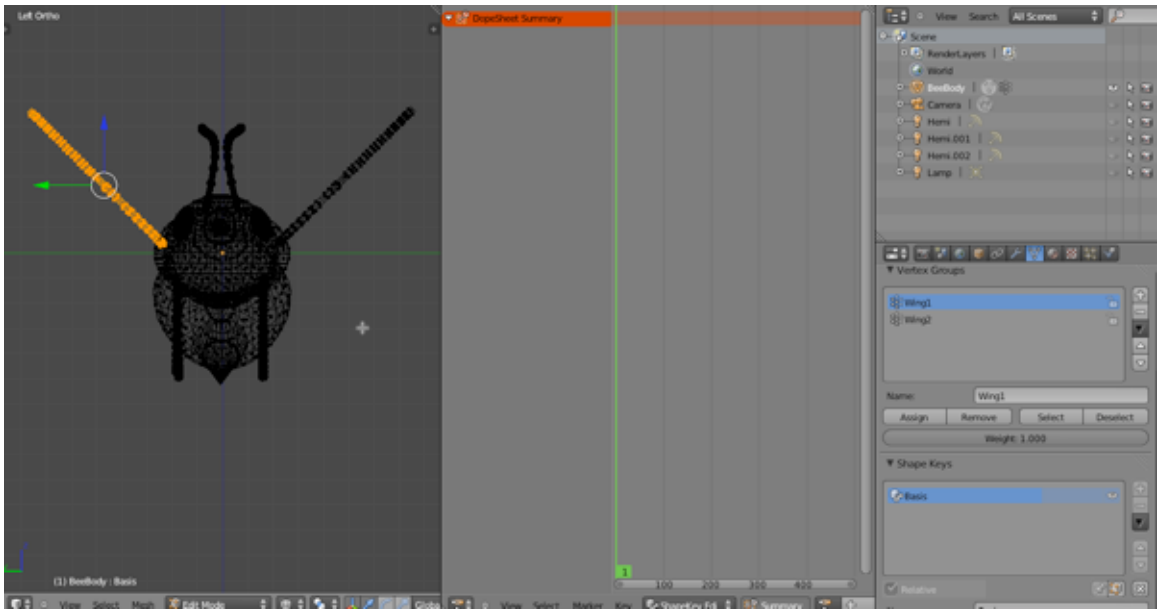
In the Dope Sheet Window menu, change the Editing Context to ShapeKey Editor.



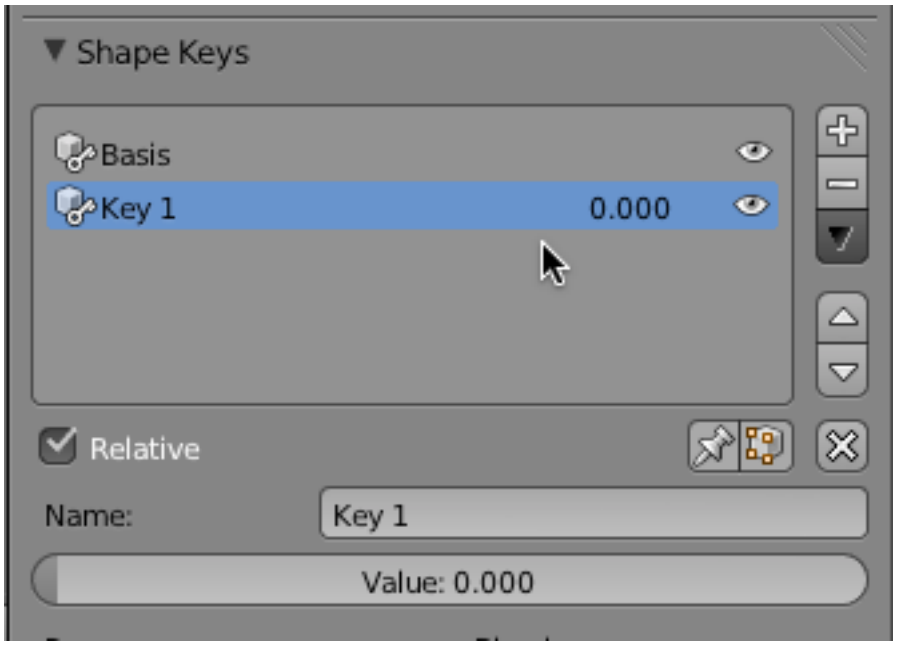
With the BeeBody object still selected **TAB out edit mode**, go to the Object Data Editor. Click on the Plus sign (+) in the Shape Keys Panel. This will create a shape key called "Basis".



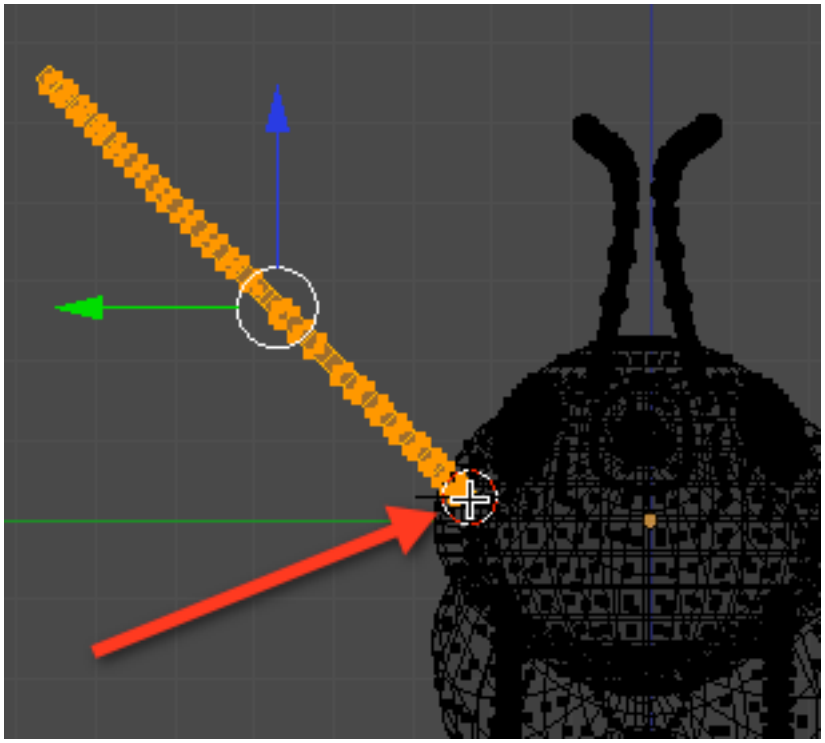
TAB into Edit mode. In the Vertex Group panel, select the Wing1 vertex group and press "Select". This will select the left wing faces.



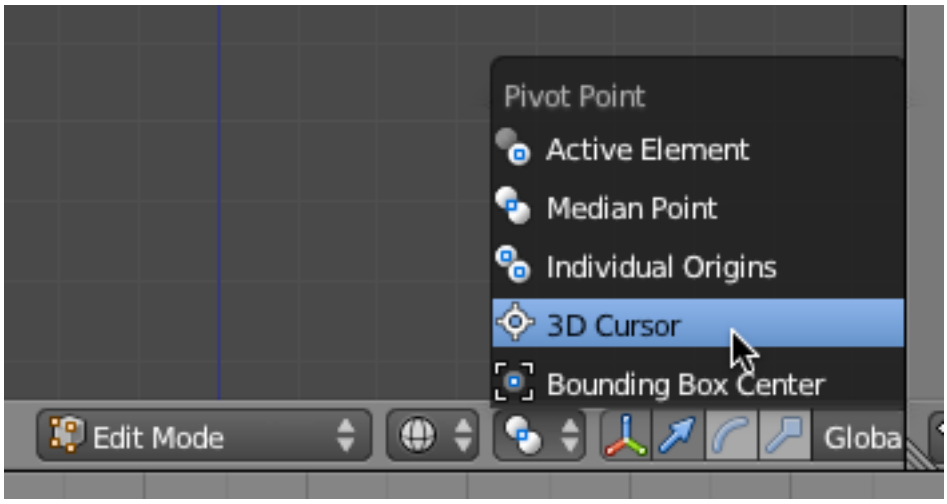
TAB out of edit mode. Click the Plus Sign in the Shape Keys panel. This will create Shape Key 1.



TAB into Edit Mode. In the 3D Viewport, place your 3D cursor at the intersection of the selected wing faces and the rest of the BeeBody as shown below.

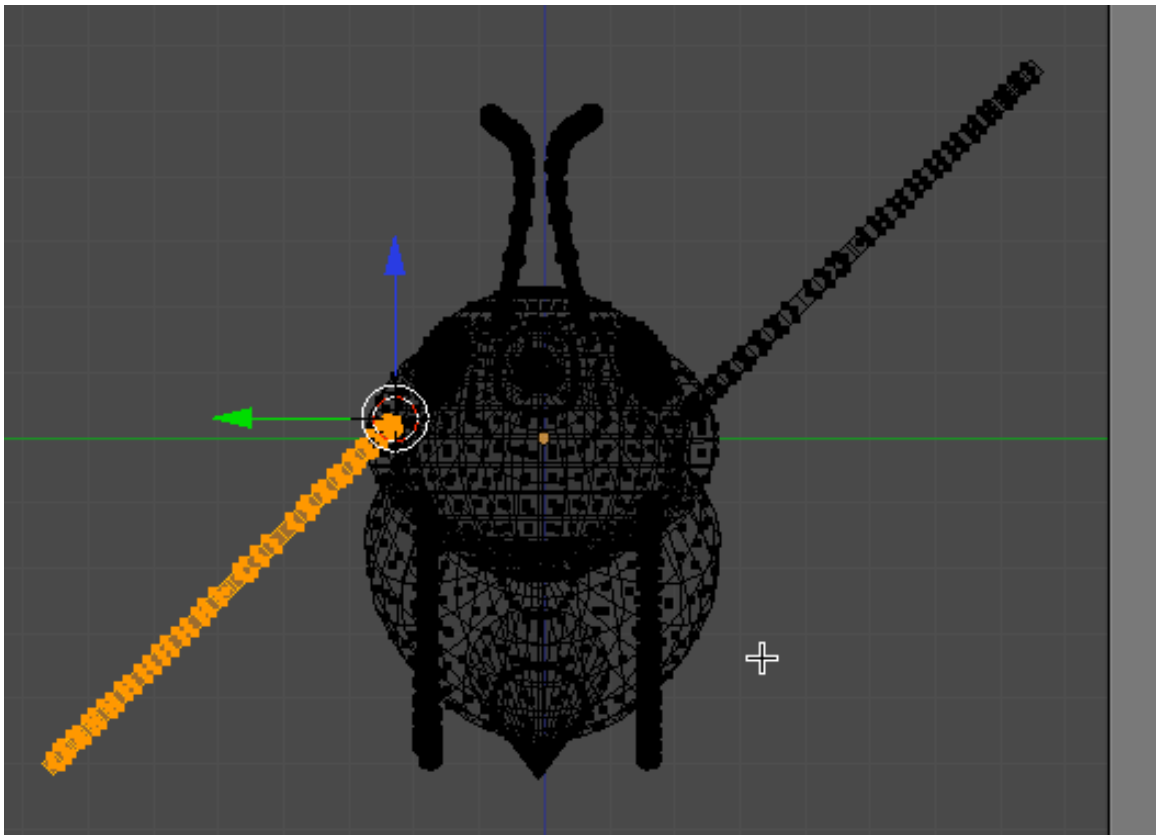


On the 3D Viewport bottom menu, change the pivot point to “3D Cursor”.

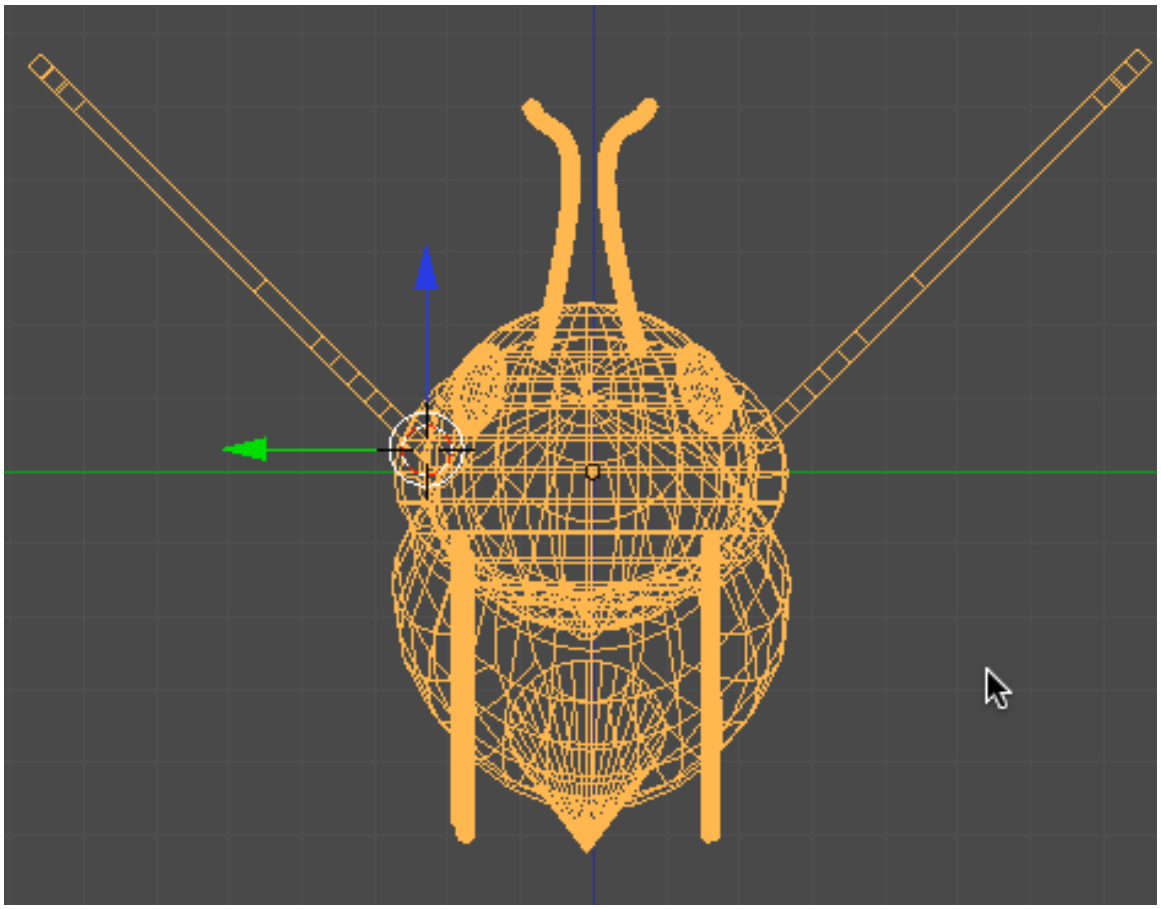


In the Timeline Window, make sure you are in Frame 1.

In the 3D Window. Press the RKEY and rotate the selected wing faces 90 degrees about the 3D cursor position as shown below. (Note: the degrees are displayed in the bottom left of the 3D viewport. When you get close to 90, hold down your SHIFT KEY to fine-tune the degree rotation.) Left-click to set.

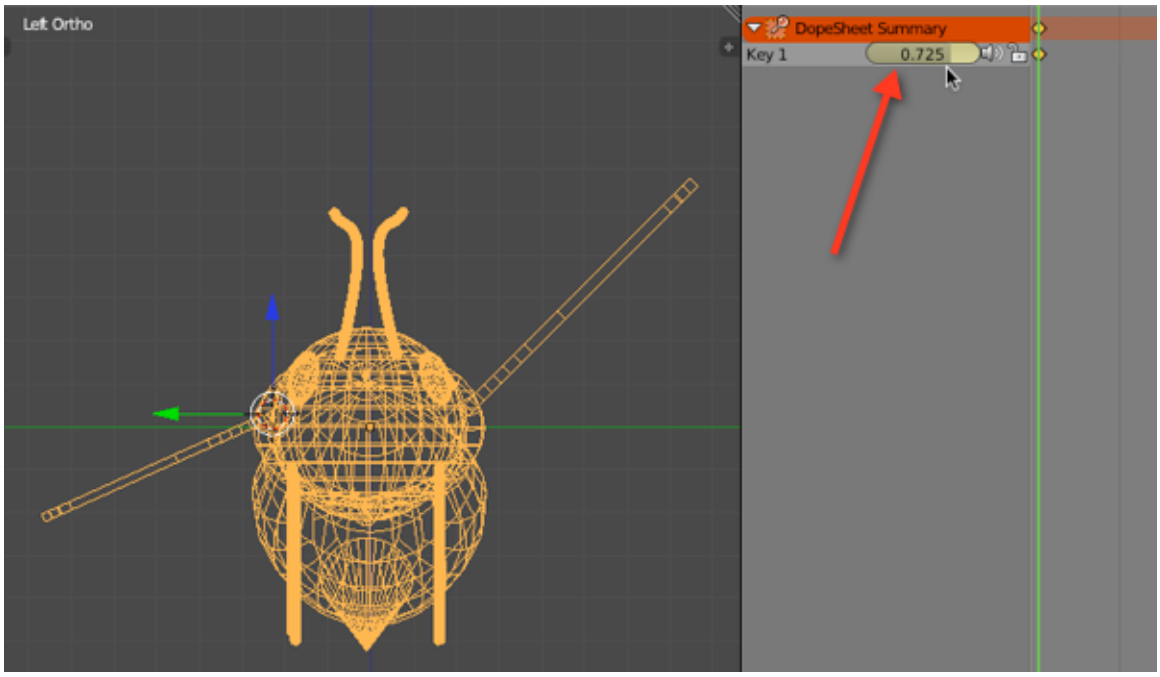


TAB out of edit mode. Note that the vertices snap back to their original position. This is because we have just set the “limits” for Shape Key 1.

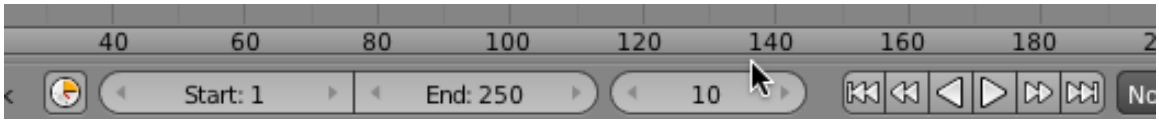


In the Shape Keys panel, there is now a slider named “Value” Adjusting this slider between 0 and 1 will adjust the position (shape) of the wing vertices. Change the value slide and note the effect in the 3D viewport.

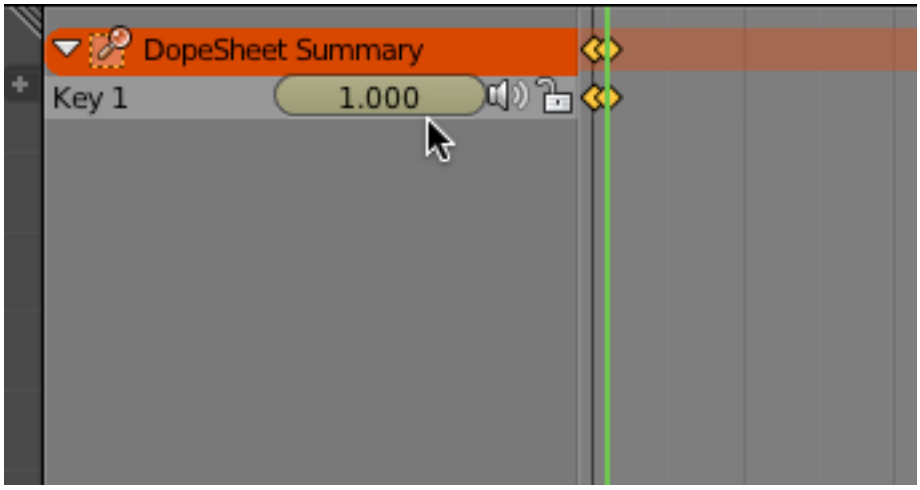
Note also, there is a similar value slider at the top of the Dope Sheet Window called “Key 1.



Set the value slider at 0. Go to frame 10.



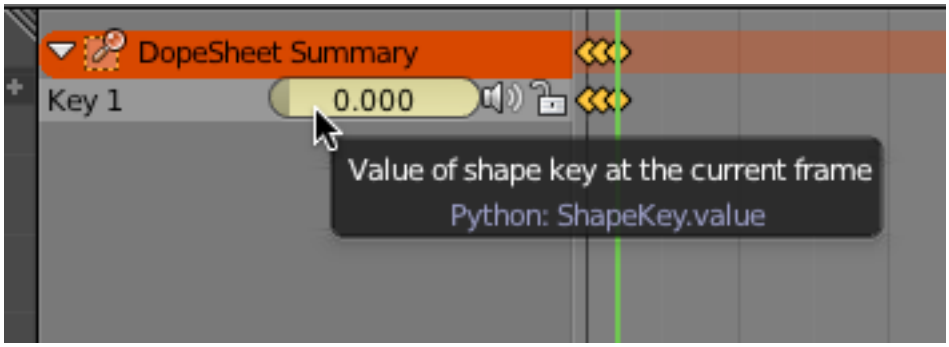
Set the Dope Sheet value slider to 1.



Note that a keyframe has been added for frame 10.

Go to frame 20.

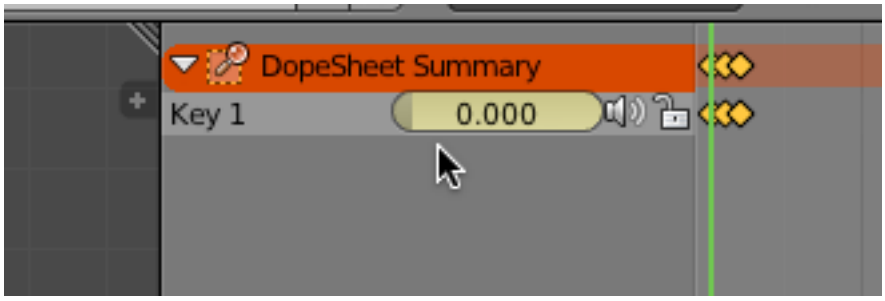
Set the Dope Sheet value slider to 0



Note that a keyframe has been added to frame 20.

Go back to frame 1.

Set the Dope Sheet value slider to 0.

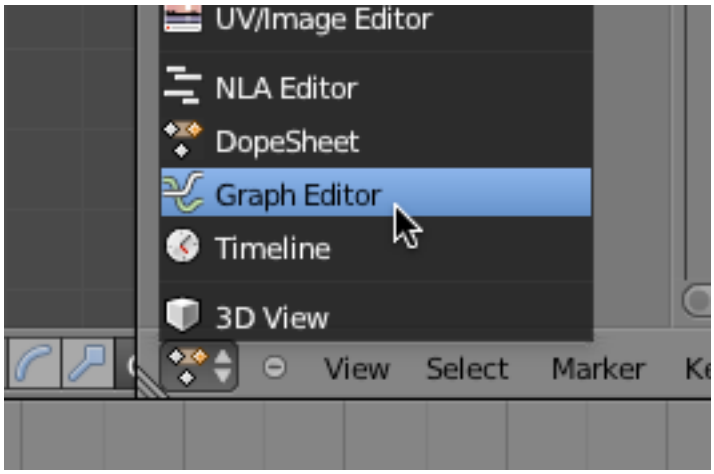


We now have 3 keyframes (frame 1, 10 and 20) with an associated animation of the wing faces.

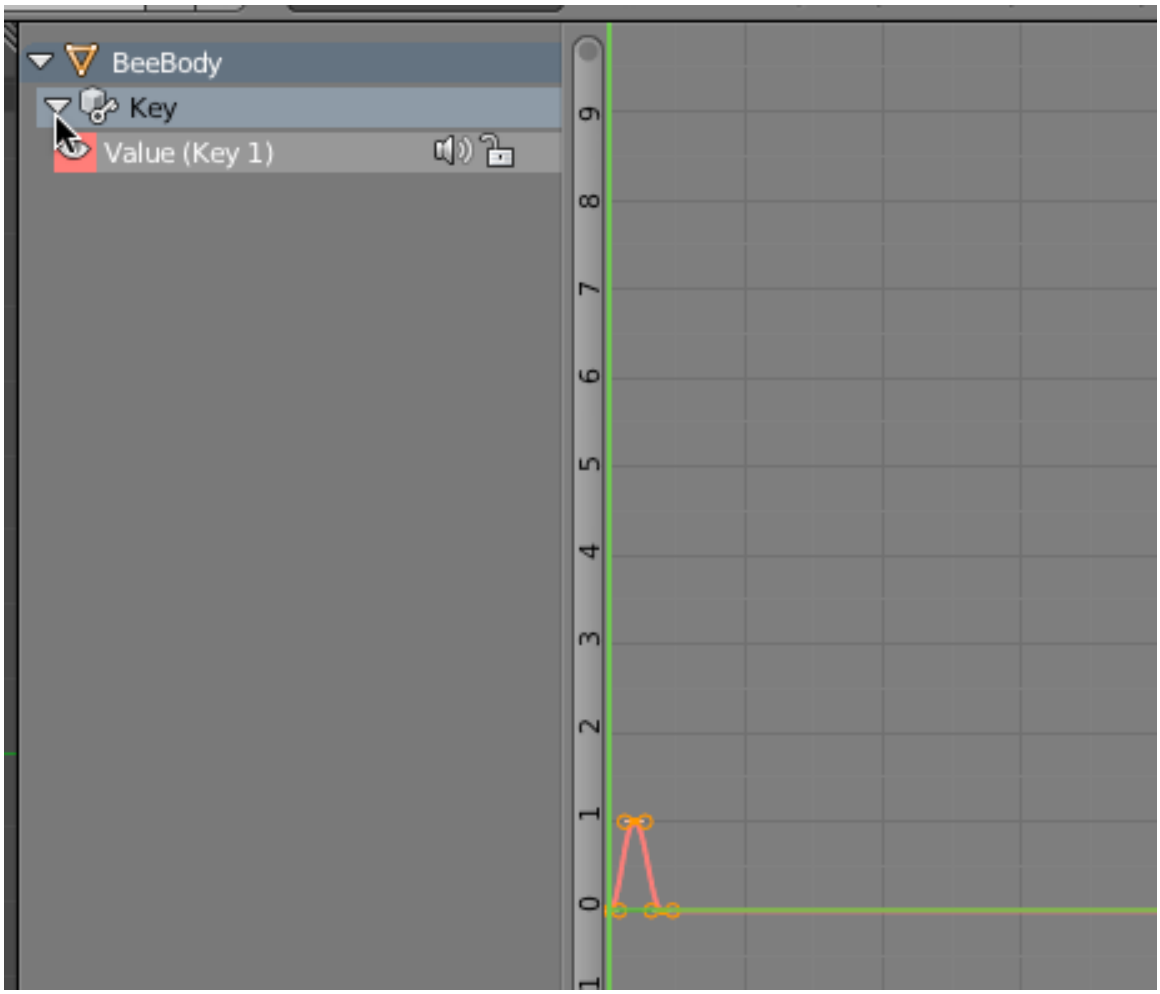
Press the Go button in the Timeline window and the animation will play (however, there is no animation between frame 20 and the default frame 250).

Press the Stop button on the Timeline Window and go back to Frame 1.

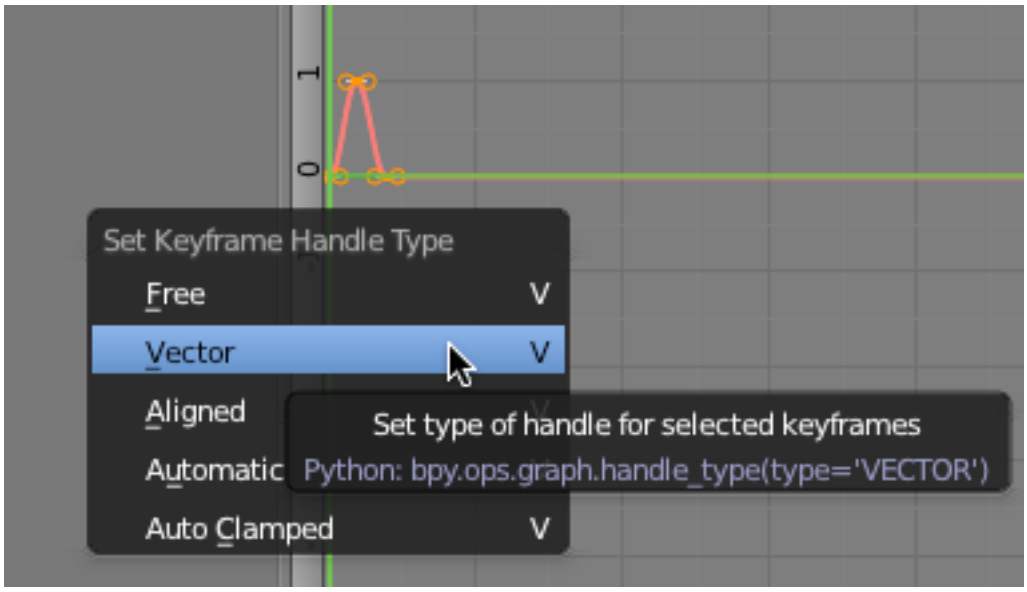
Change the right Dope Sheet Window to the Graph Editor Window.



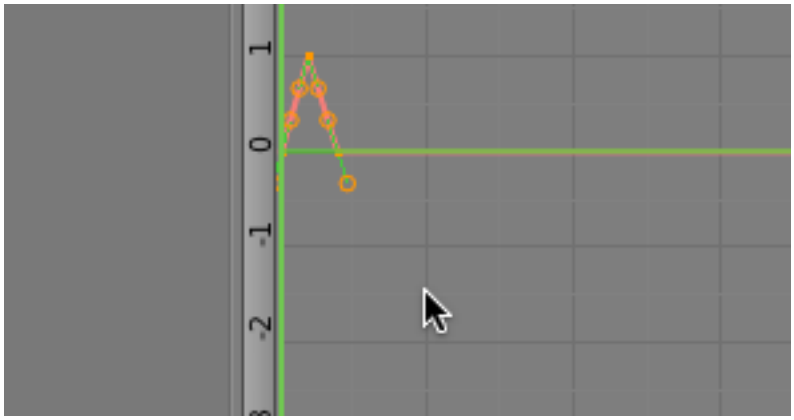
Click on the arrow to the left of the “Key” item to reveal the “Value (Key 1)” animation slot. Note that the Graph displays the Key 1 animation as a curve object along a timeline.



Place your cursor in the graph area and press the VKEY (keyframe handle type) and select Vector

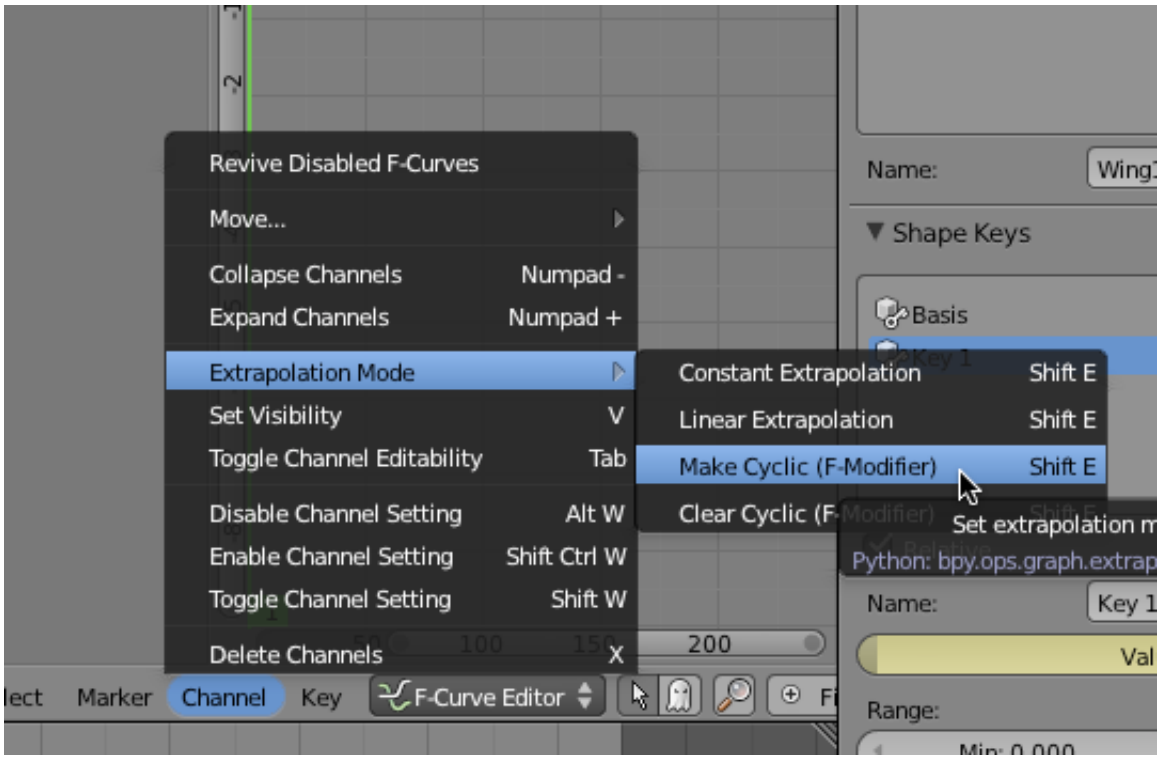


This changes the curve representation from an ease curve to a straight-line curve.

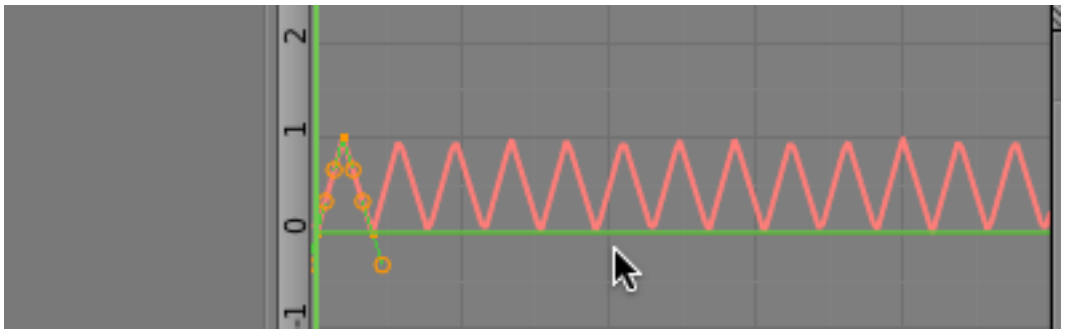


The animation of the wings will now be direct in and out of the keyframes rather than ease in and out of the keyframes.

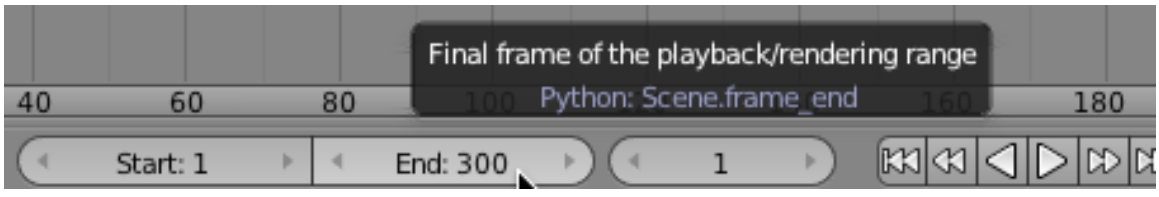
In the bottom menu of the Graph Editor select Channel / Extrapolation Mode / Make Cyclic



This “extends” the Key 1 animation for the length of the whole animation timeline in a cyclic fashion.



In the Timeline Window, set the whole animation length to 300 frames.

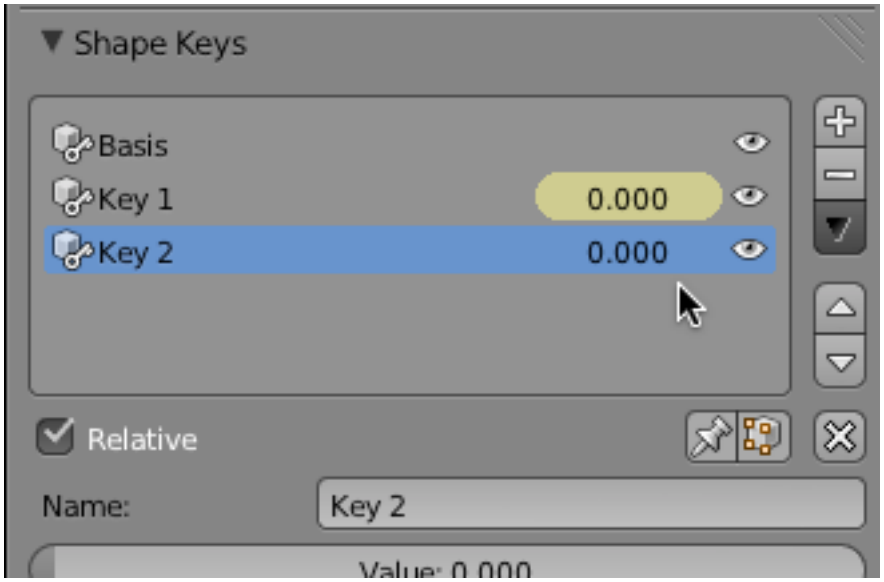


Press the Go button in the Timeline Window and play the animation. The wing animates up and down throughout the 300 frames.

Press the stop button. **Save your Blend file.**

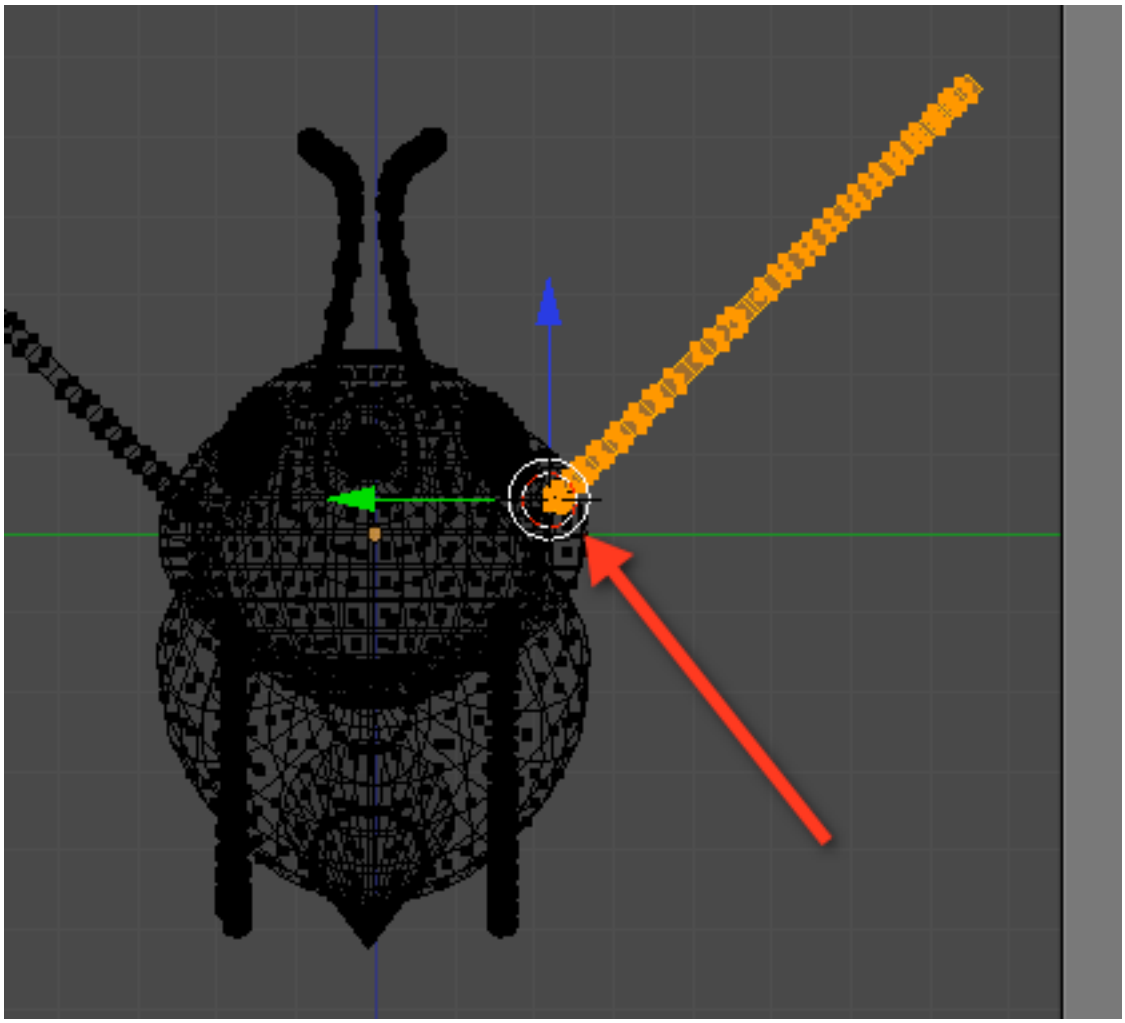
We need to do the same for the other wing. Chane your right Window back to the Dope Sheet Window. Make sure the BeeBody is still selected and that it is in object mode.

In the Shape Keys panel, press the Plus Sign button to add a new Key (Key 2).



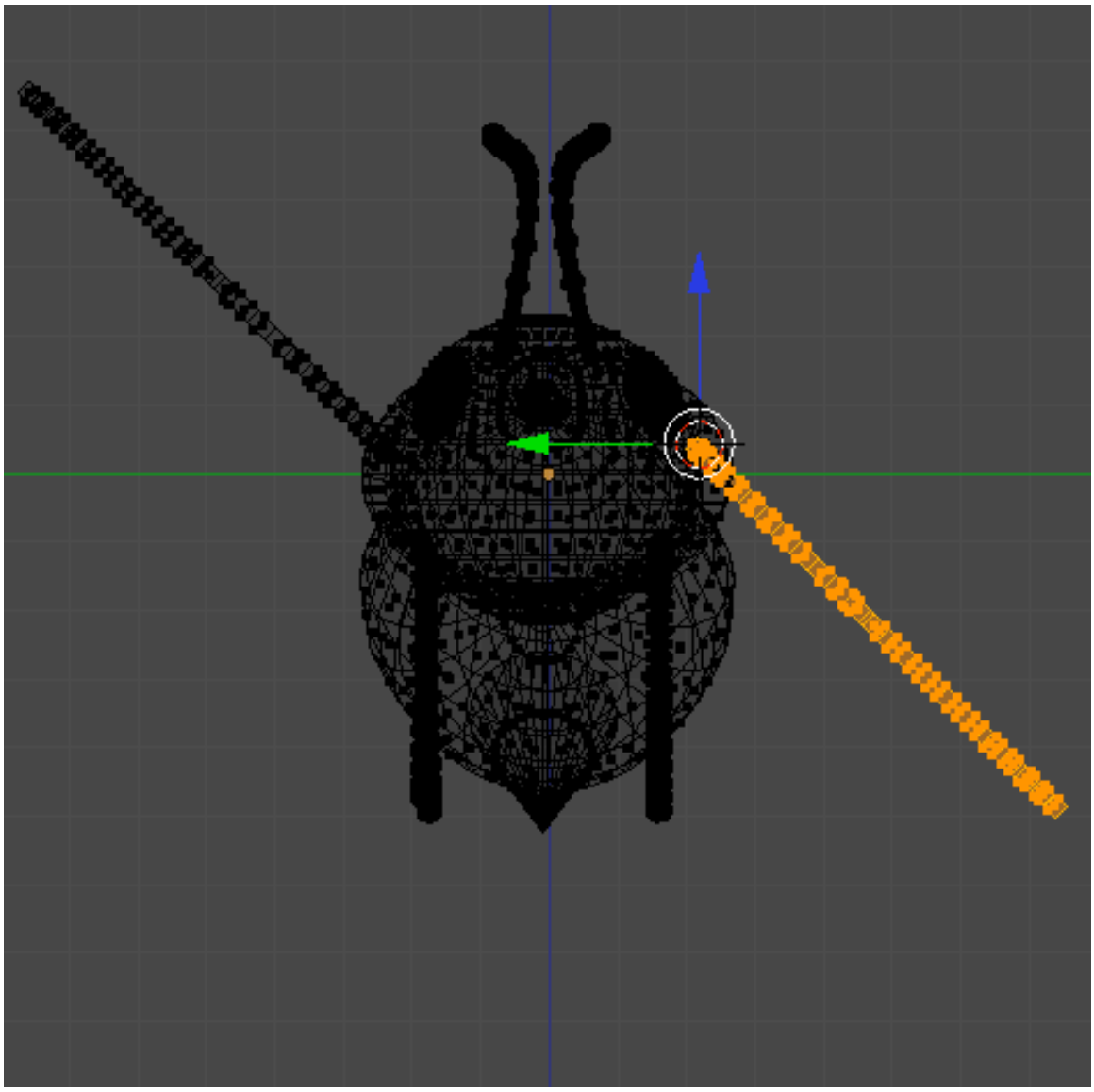
TAB into Edit Mode. In the Vertex Group panel the Wing1 vertex group is still selected. Press the Deselect button. Then select the Wing2 vertex group and press the Select button. This will select the faces for the other wing.

Place your 3D cursor at the intersection of the selected wing faces and the rest of the BeeBody as shown below.

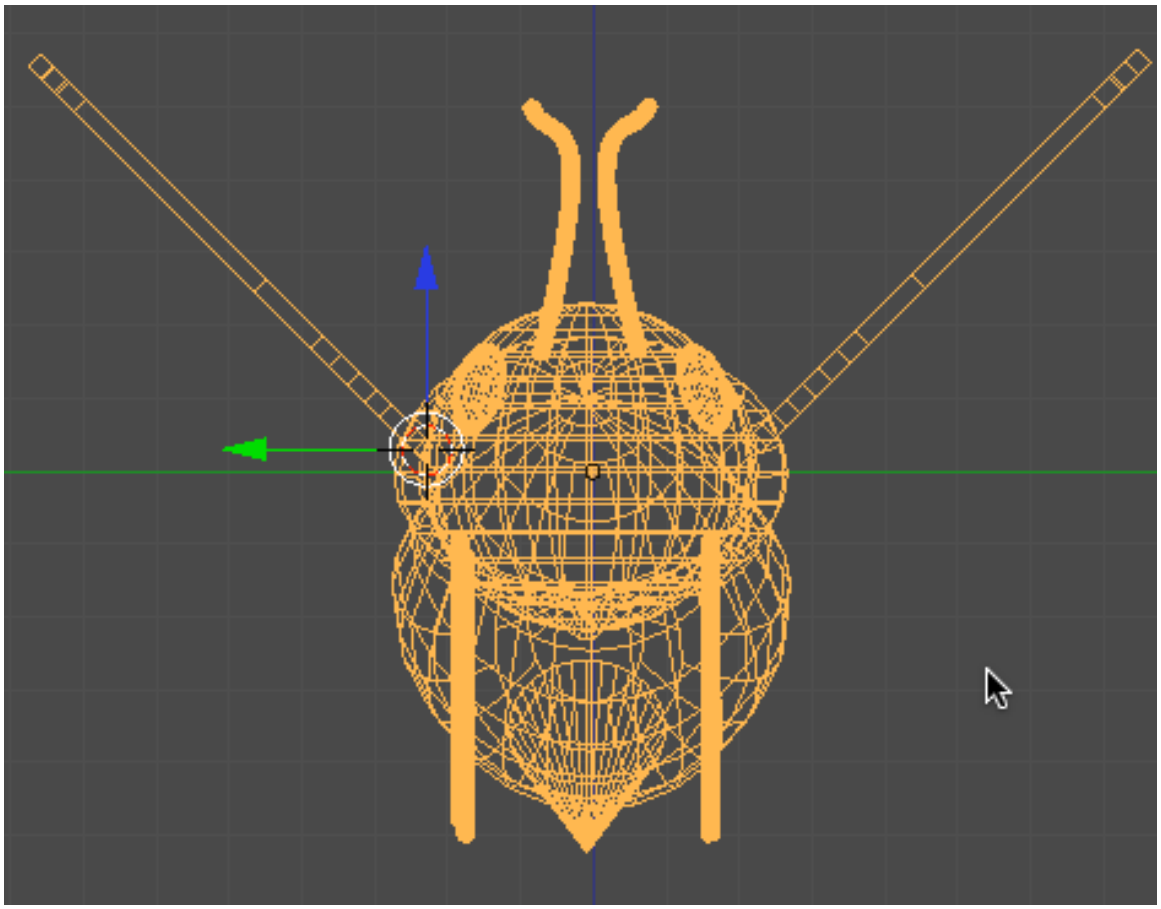


In the Timeline Window, make sure you are in Frame 1.

In the 3D Window. Press the RKEY and rotate the selected wing faces 90 degrees about the 3D cursor position as shown below. (Note: the degrees are displayed in the bottom left of the 3D viewport. When you get close to 90, hold down your SHIFT KEY to fine-tune the degree rotation.) Left-click to set.

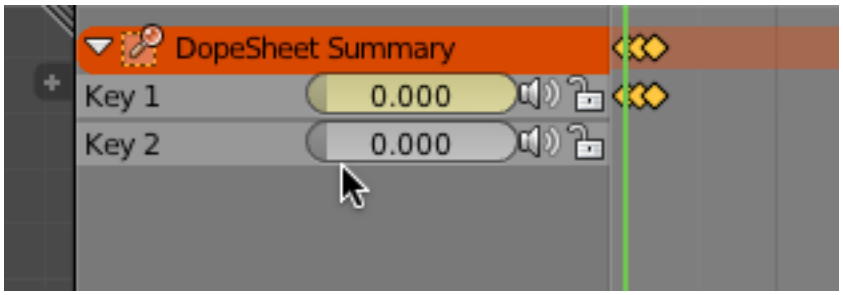


TAB out of edit mode. Note that the vertices snap back to their original position. This is because we have just set the “limits” for Shape Key 2.

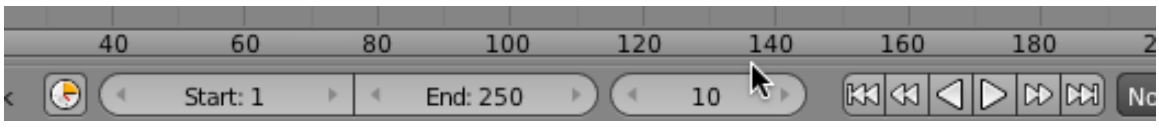


In the Shape Keys panel, there is now a slider named “Value” Adjusting this slider between 0 and 1 will adjust the position (shape) of the wing vertices. Change the value slide and note the effect in the 3D viewport.

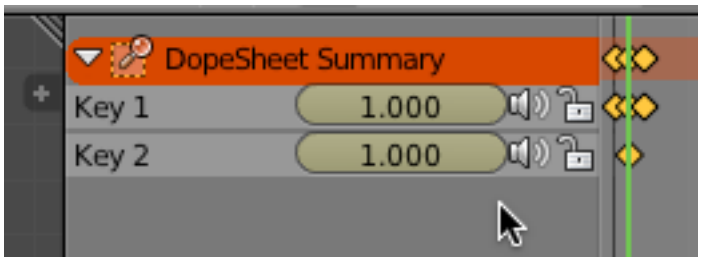
Note also, there is a similar value slider at the top of the Dope Sheet Window called “Key 2.



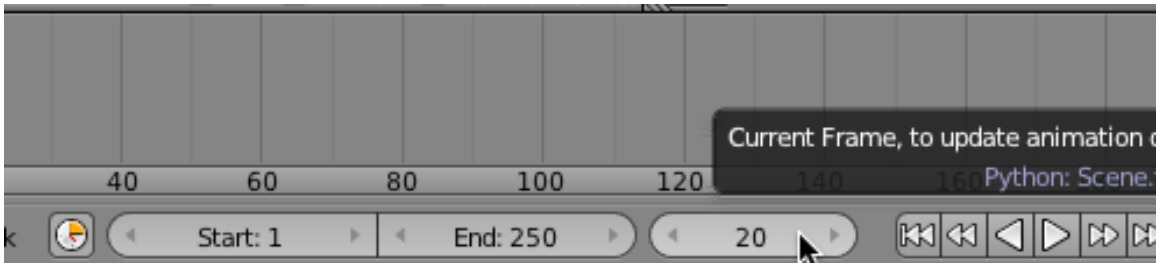
Set the value slider at 0. Go to frame 10.



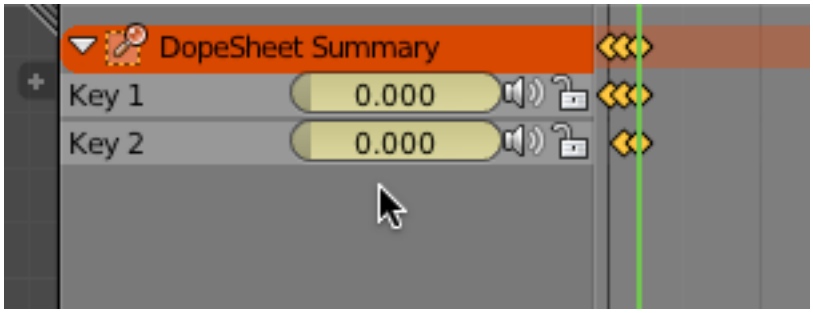
Set the Dope Sheet value slider to 1.



Go to frame 20.



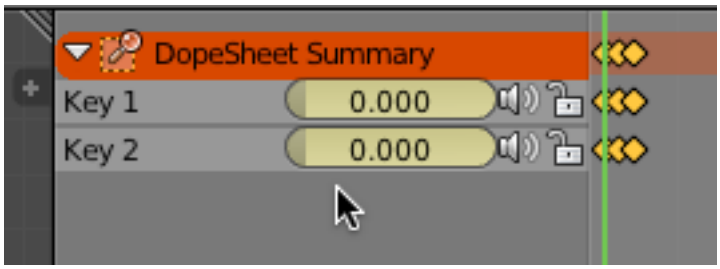
Set the Dope Sheet value slider to 0



Note that a keyframe has been added to frame 20.

Go back to frame 1.

Set the Dope Sheet value slider to 0.

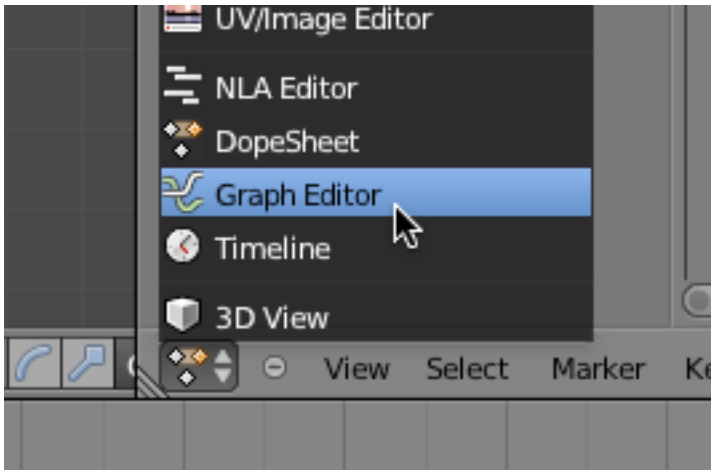


We now have 3 keyframes for the KEY 2 animation (frame 1, 10 and 20) with an associated animation of the wing faces.

Press the Go button in the Timeline window and the animation will play (however, there is no animation between frame 20 and frame 300 for the Key 2 animation of the right wing).

Press the Stop button on the Timeline Window and go back to Frame 1.

Change the right Dope Sheet Window to the Graph Editor Window.

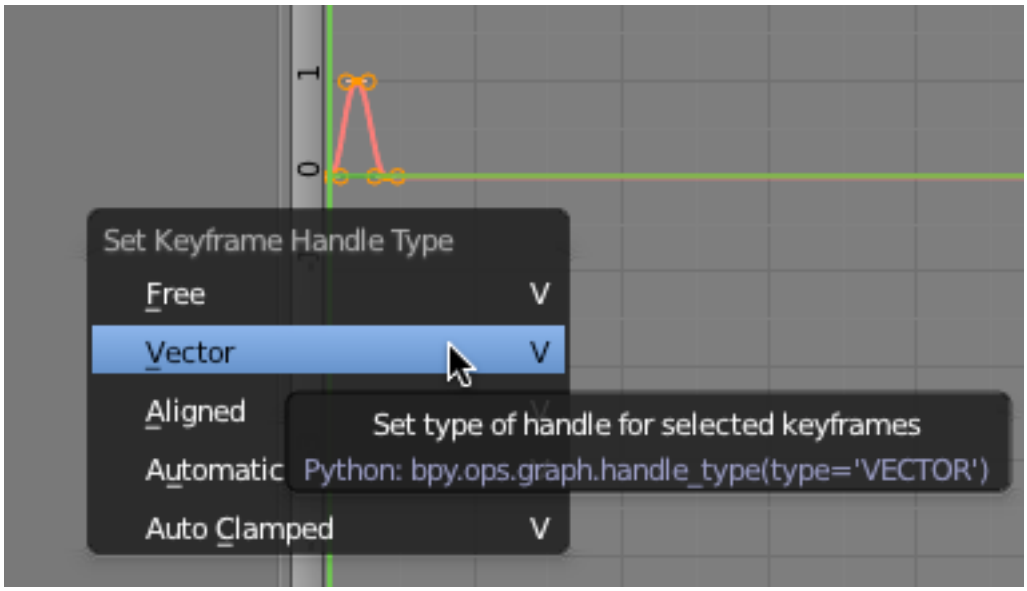


Click on the arrow (if closed) to the left of the “Key” item to reveal the “Value (Key 1)” animation slot and the “Value (Key 2)” animation slot.

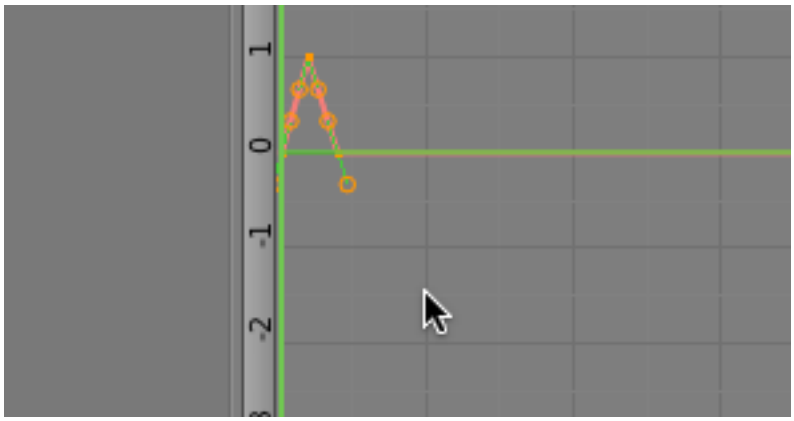
Select the Value (Key 2) animation slot.

Note that the Graph displays the Key 2 animation as a curve object along a timeline.

Place your cursor in the graph area and press the VKEY (keyframe handle type) and select Vector

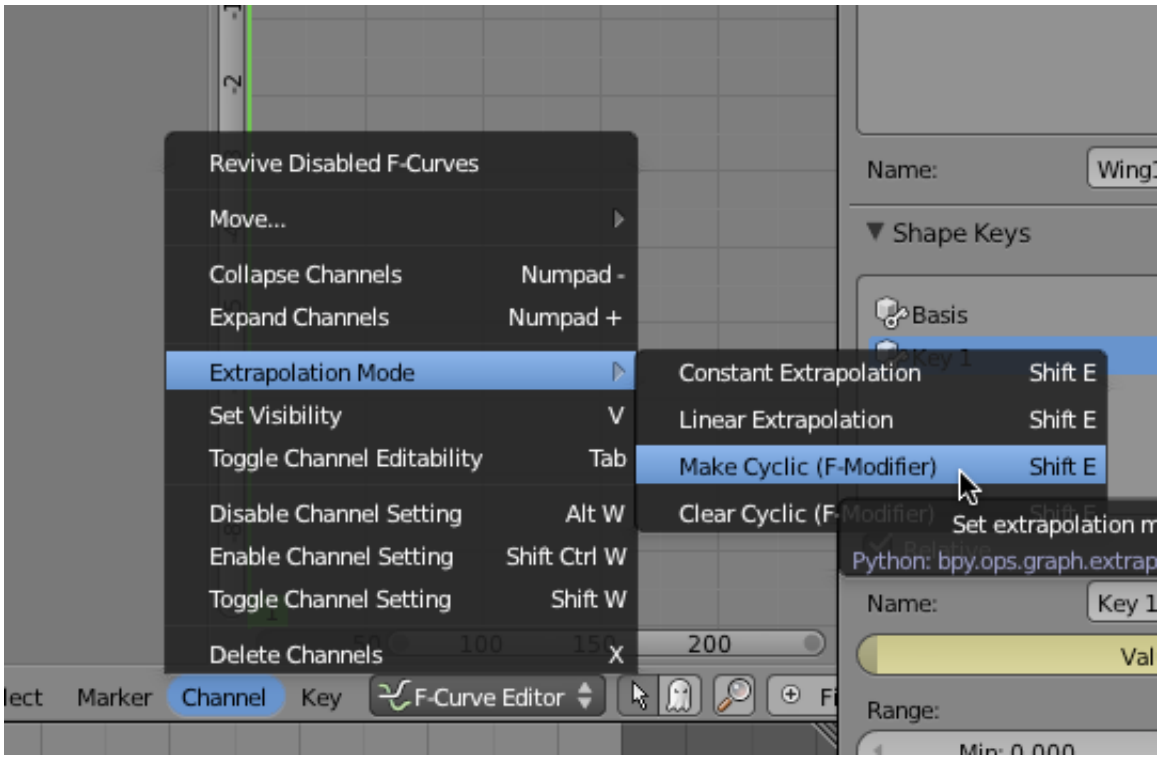


This changes the curve representation from an ease curve to a straight-line curve.

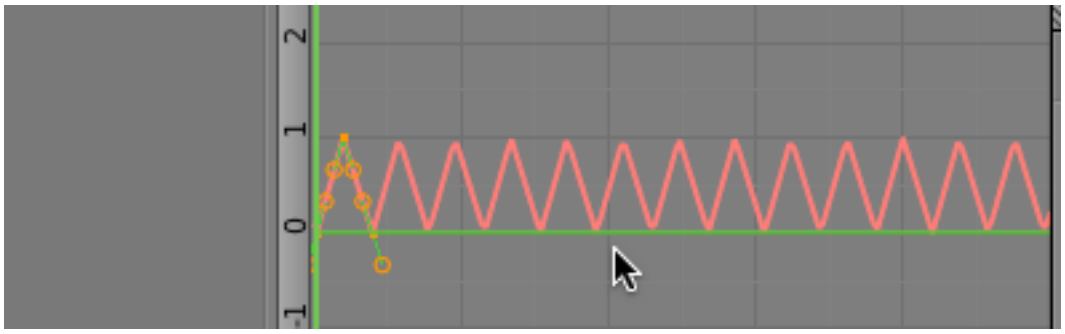


The animation of the wings will now be direct in and out of the keyframes rather than ease in and out of the keyframes.

In the bottom menu of the Graph Editor select Channel / Extrapolation Mode / Make Cyclic



This “extends” the Key 2 animation for the length of the whole animation timeline in a cyclic fashion (300 frames).



Press the Go button in the Timeline Window and play the animation. The wing animates up and down throughout the 300 frames.

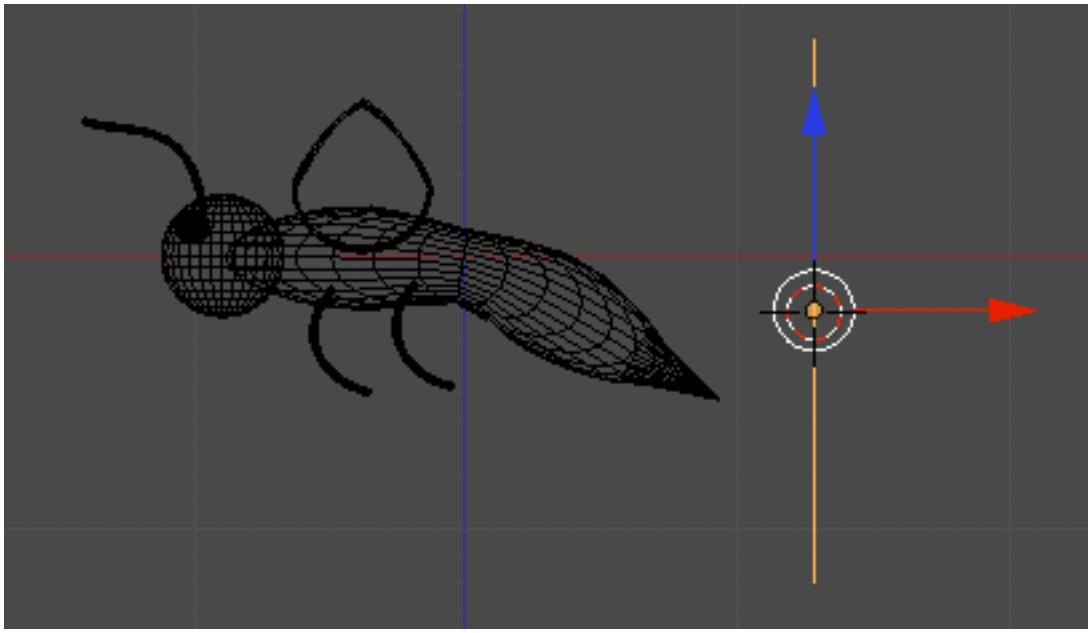
Press the stop button. **Save your Blend file.**

Particles:

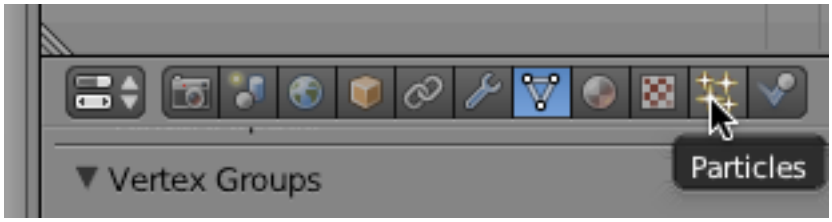
We will now use the animated BeeBody object as a Blender particle creating a swarm.

Combine the 2 display Windows into one 3D Viewport window. Press the NKEY to display the Properties panel. Go to front view. Deselect the BeeBody object. Go to solid shading mode.

Place your 3D cursor to the right of the BeeBody object and add a Plane object. Set the Y Rotation for the Plane object to 90 degrees.

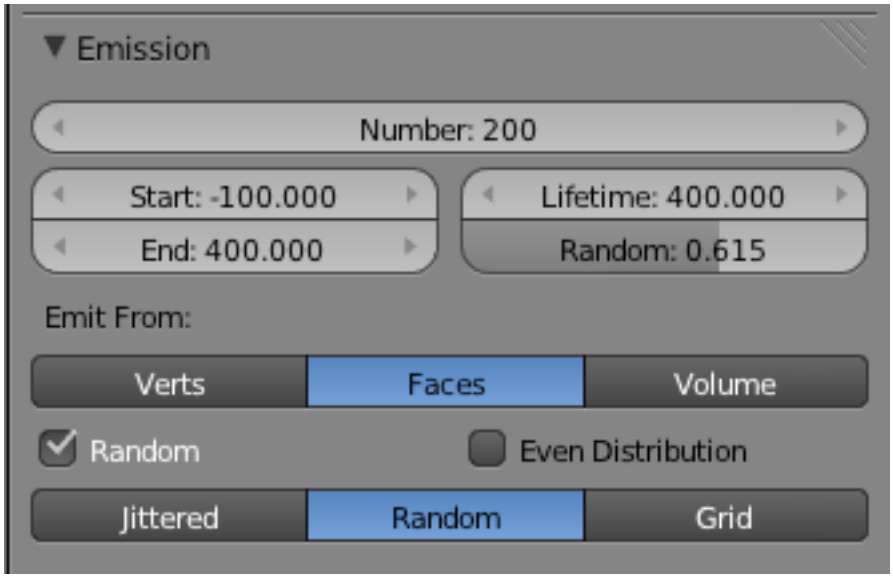


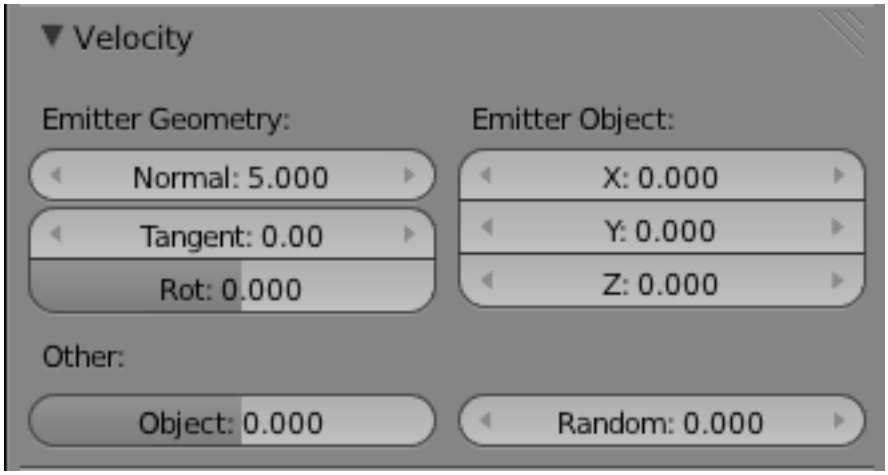
We will use this Plane object as the Particle Emitter. With the Plane object selected, go to the Particles Editor.

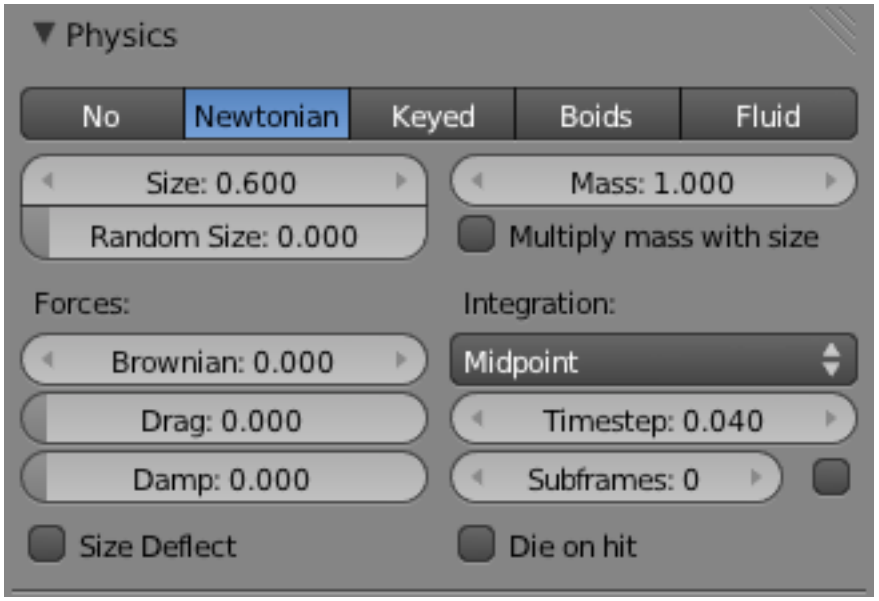


Click on the Plus Sign (+) to create a new Particle System.

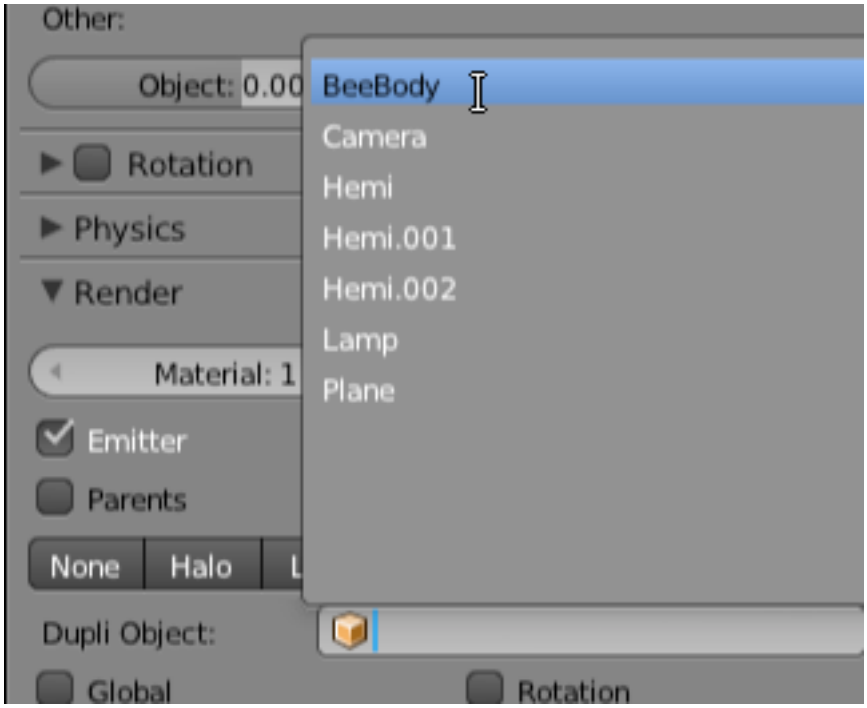
Adjust the settings in the Emission, Velocity and Physics panels as shown below.


Emission
Number: 200
Start: -100.000
End: 400.000
Lifetime: 400.000
Random: 0.615
Emit From:
Verts
Faces
Volume
Random
Even Distribution
Jittered
Random
Grid

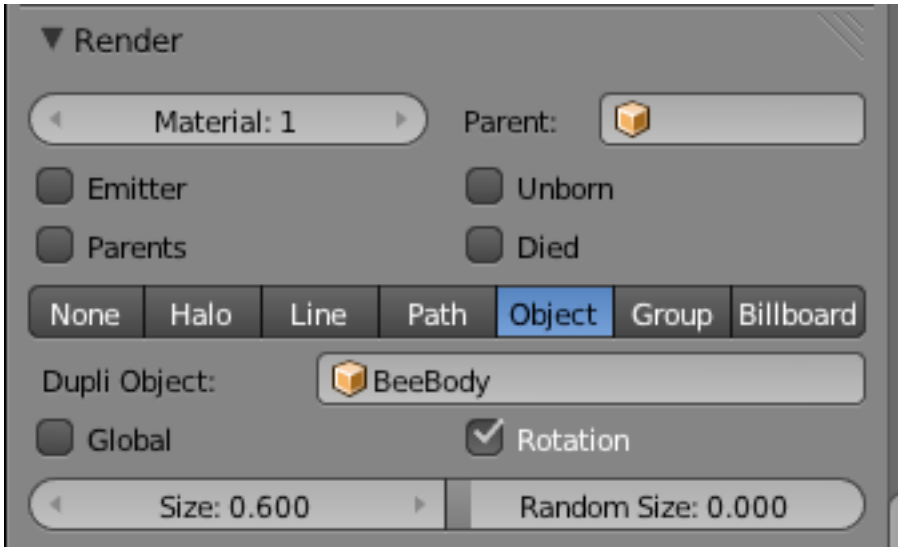

Velocity
Emitter Geometry:
Normal: 5.000
Tangent: 0.00
Rot: 0.000
Emitter Object:
X: 0.000
Y: 0.000
Z: 0.000
Other:
Object: 0.000
Random: 0.000


Physics
No
Newtonian
Keyed
Boids
Fluid
Size: 0.600
Random Size: 0.000
Mass: 1.000
Multiply mass with size
Forces:
Brownian: 0.000
Drag: 0.000
Damp: 0.000
Integration:
Midpoint
Timestep: 0.040
Subframes: 0
Size Deflect
Die on hit

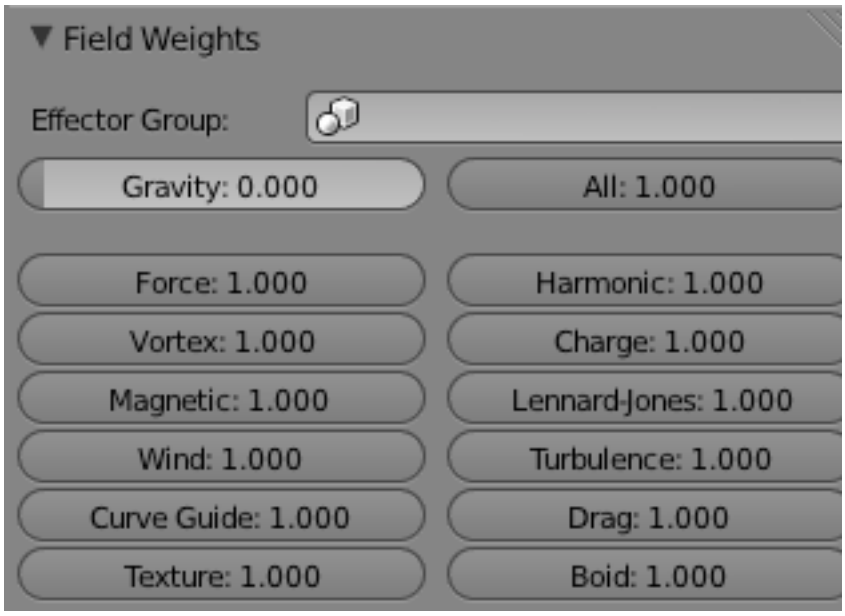
In the Render panel, select “Object” and select from the Dupli Object box the BeeBody object.



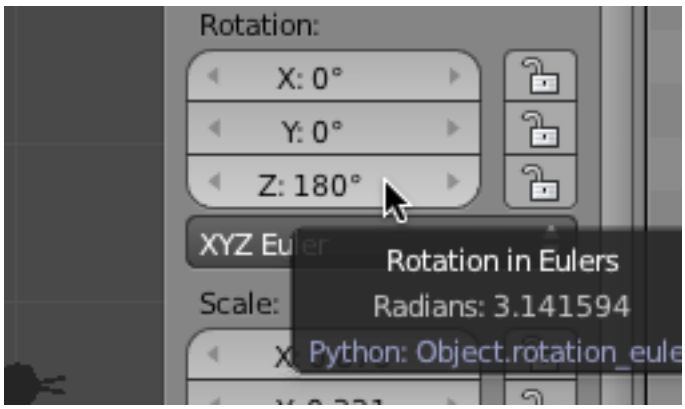
Uncheck render “emitter” and checkmark “rotation”



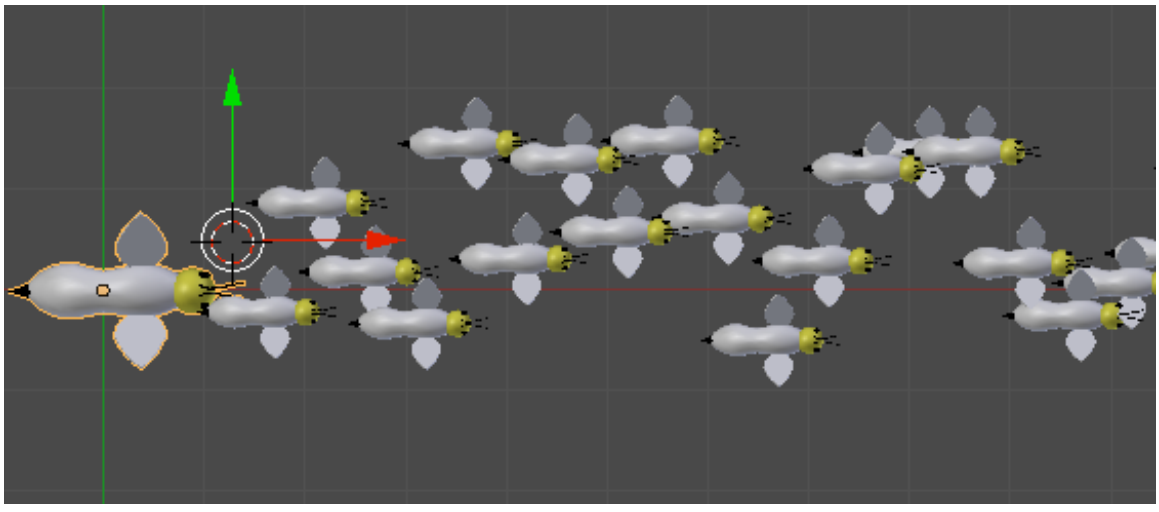
In the Field Weights panel, set the Gravity slider to 0.



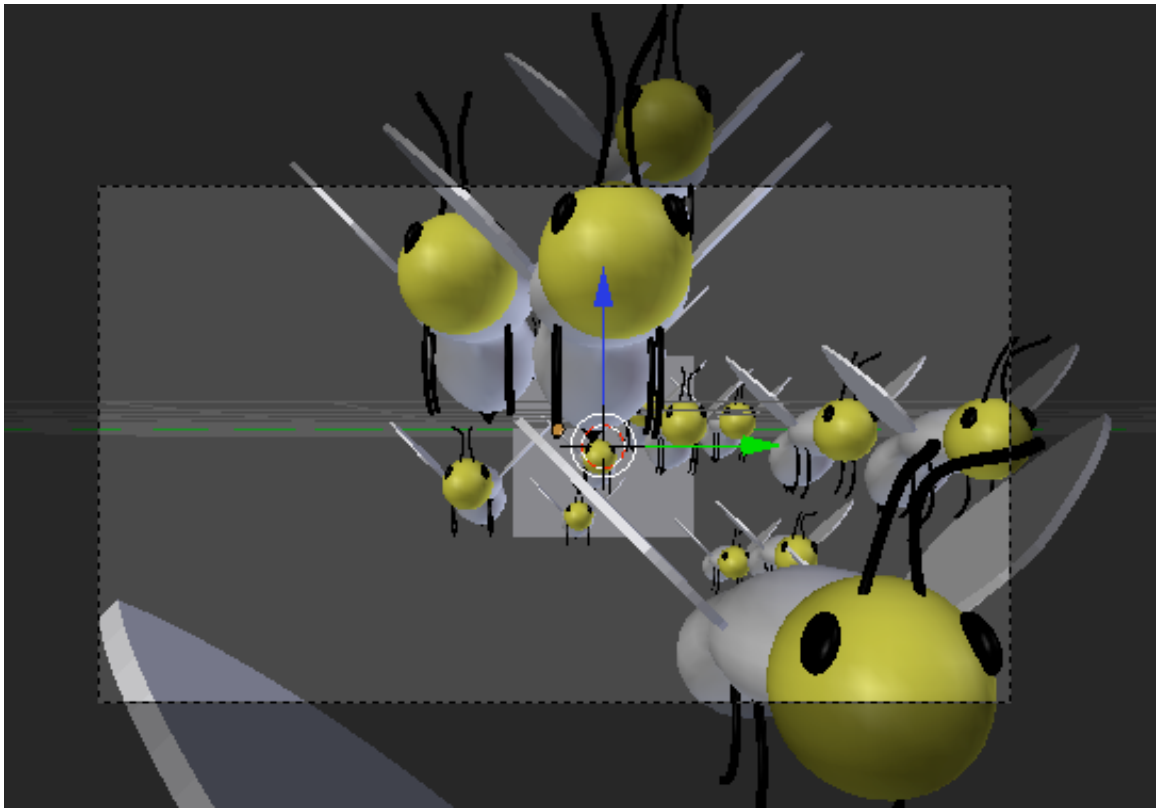
Go to top view. Select the BeeBody object and set the Z rotation to 180



This will turn the “particle” bees around facing away from the Plane object emitter.



Go to Side view. Press CTRL-ALT-NUMPAD-0 (align camera to view). This will set the camera straight on to the plane emitter object.

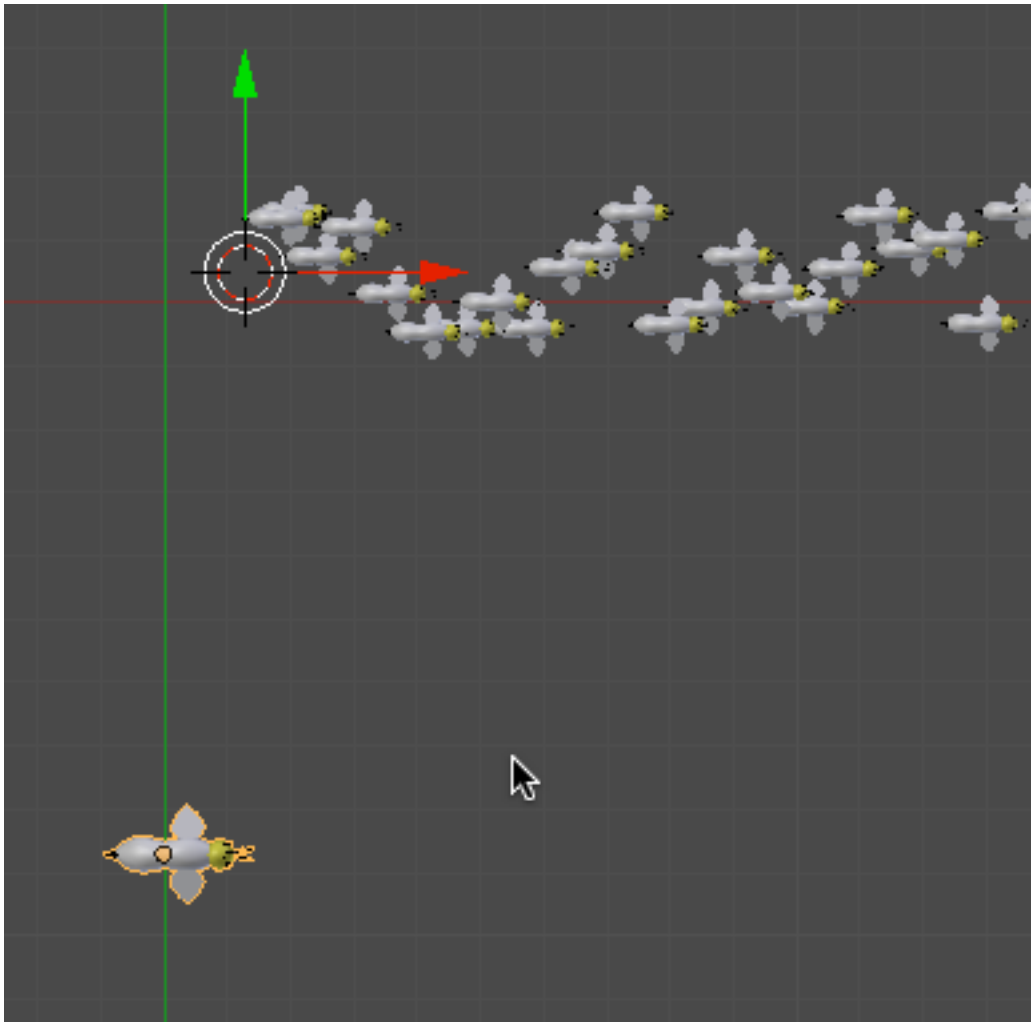


In the Timeline window, press the go button to play the animation.

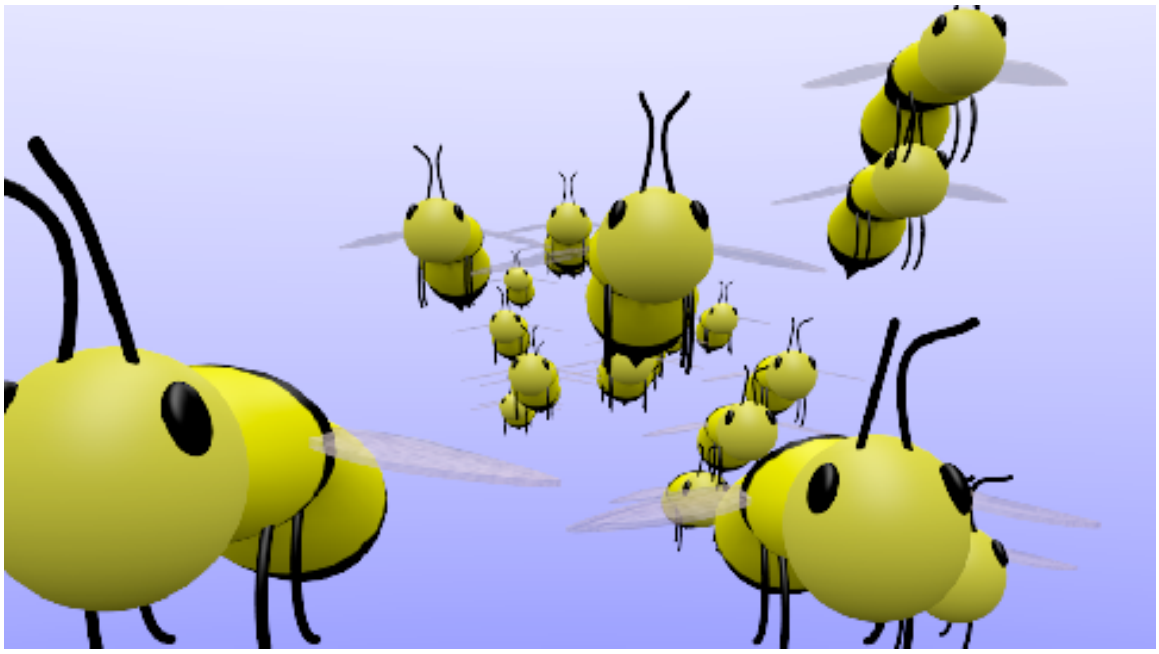
Note: you may want to adjust your camera position as well as playing with some of the particle controls, especially the number and velocity.

You may also want to go to top view and move your camera object (unhide it) farther away from the Plane emitter object.

Go to top view. The original BeeBody object is static and we do not want it in the rendered animation. Select the BeeBody object and move it to the side out of camera view.



Go to camera view (NUMPAD-0) Go to a good frame (I went to frame 147). In the 3D Viewport menu click on the Render button and select Render Image.

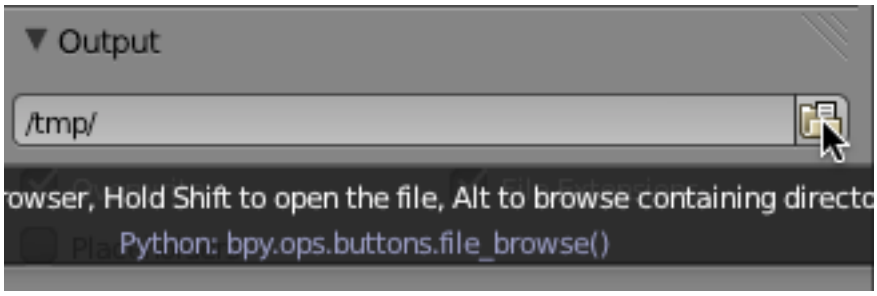


Render Animation Video:

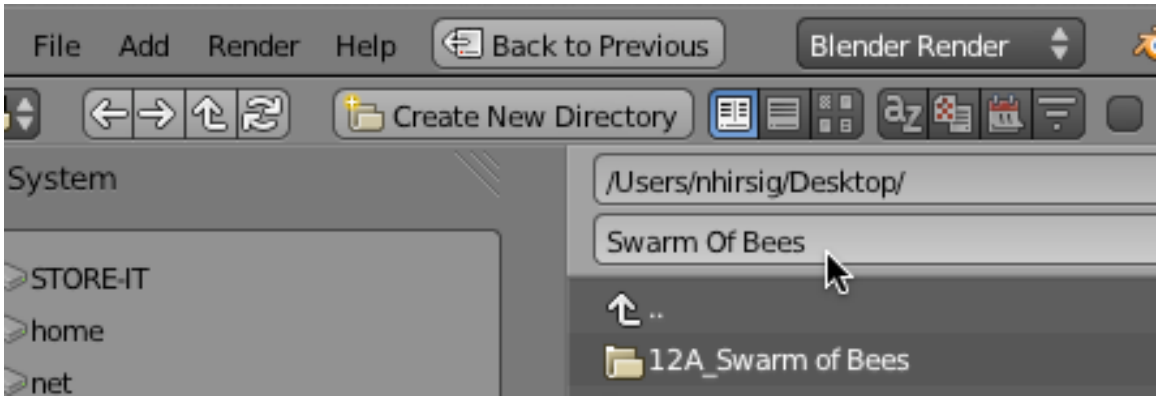
In addition to rendering a still image we can also render the 300 frame animation and save it to our computer as a Video file (MPEG).

Press ESC (if you are still in the UV Image Editor to return to the 3D Viewport. Go to the Rendering Editor.

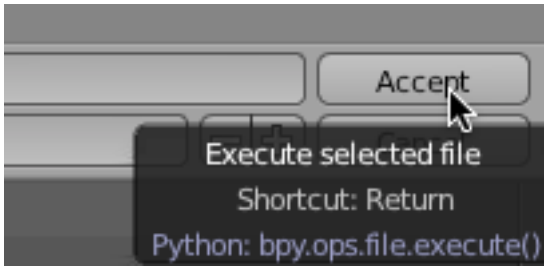
Scroll down to the Output panel and click on the folder icon as shown below.



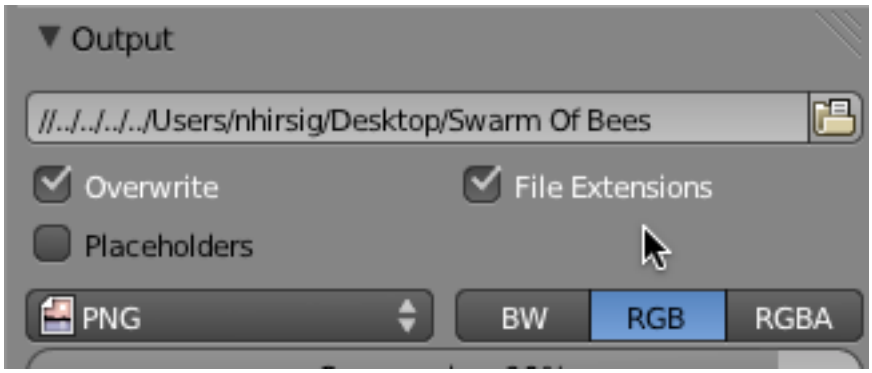
This displays Blender's file page. Decide where you would like the video file to be located (I choose the desktop) and then name the file Swarm Of Bees (You do not have to add a file extension to the name).



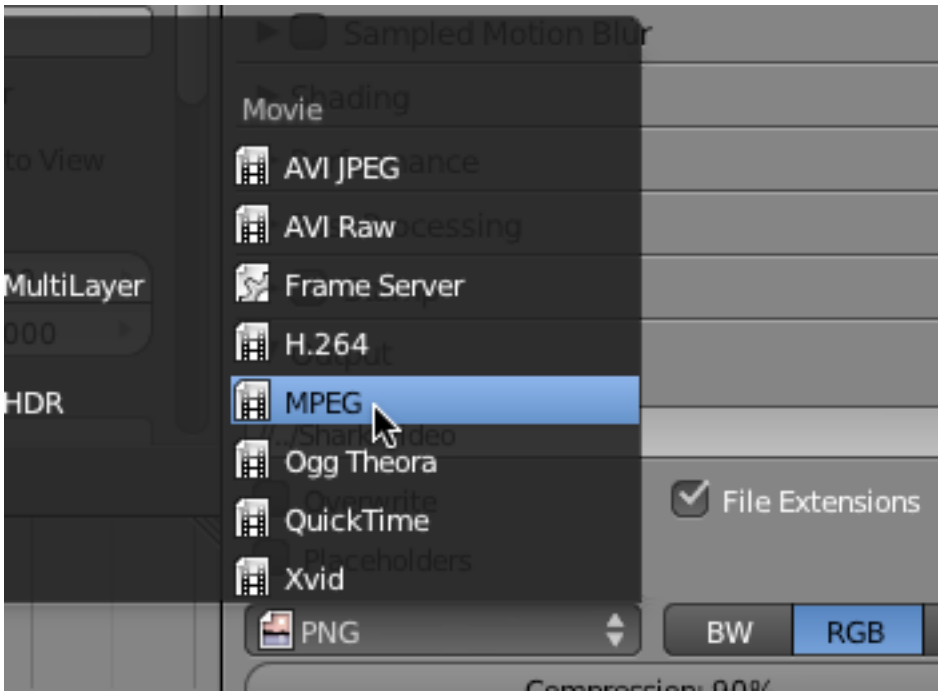
Click on the Accept button.



This sets the name and file saving path in the Output panel of the Render Editor.



Click on the PNG (which is really the file type button) and select MPEG



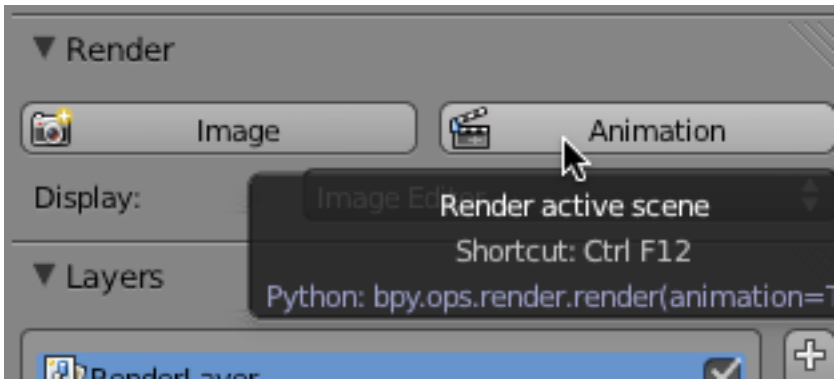
Note: You can choose a different video file type if you want.

Scroll up to the Dimensions Panel. Note that the default dimensions of the video (or the image) is 1920 pixels by 1080 pixels at 50%. This means the size of the video (or image) will be rendered at 960 x 540 pixels.

You can change this size by reducing the % slider. At 25%, the rendered video will be 540 x 270 pixels.

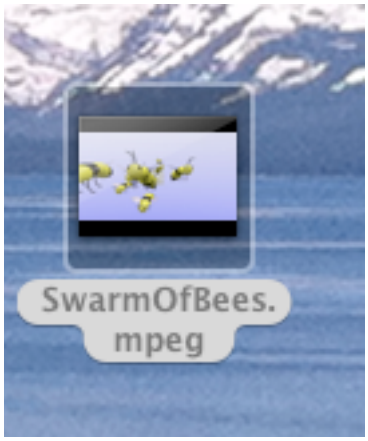
The larger the render dimensions, and the more complex the modeling, animation, texturing and especially the lighting, the longer it will take to render.

To render the video file, click on the Animation button.



This will render each frame in order in the UV Image Editor. This may take a long time. When the rendering is complete. You should have a video file (of your chosen file type) located on your desktop (or wherever you set the video to be rendered to.)

If you choose MPEG as the file type, the video file is, by default, named Swarm Of Bees-0001-0300.dvd. You can rename this to SwarmOfBees.mpeg.



Save your Blend file.

You can view this Video file HERE.

A completed copy of this tutorial .blend file named “SwarmOfBees_Complete.blend: can be found HERE.