

Modeling & texturing a basic

Mastering 3D Graphics ~ issue #4

Dragonfly Cinema 4D ~ Adam Watkins

The Lure of the Dragonfly

The darting dragonfly with its blurred wings and erratic yet controlled path of flight has long been a fascinating creature for me. Even the name conjures up images of mystery and a sort of oxymoronical power. Besides the interest as mythical nymph, it also is a most interesting shape. With it's heavy upper thorax and head and long slender tail, it is by far one of the most dramatically shaped "critters" around.



However, even though its overall shape is most interesting and the idea of a dragonfly is mysterious and complex, the sections of its body can be broken down into smaller sections that can all be represented simply with elongated spheres, making it ideal for introductory level Cinema 4D.

This first tutorial will explore some of the powerful tools of C4D: modeling and texturing. Though C4D's capabilities in areas of lighting and animation are elegant and powerful, I have attempted to keep this initial tutorial simple. The other areas will follow. Through these abstract shapes and simple texture creation we should be able to get a good look at Maxon's Cinema 4D while still creating a critter for use in portfolios and future projects.

A Word about Maxon's Cinema 4D

Cinema 4D has a multi-leveled marketing plan in which they sell several different versions of their 3D software to cater for each animators needs. No need to buy what you'll never use right? The problem is, despite an overall consistency in packages, there are marked differences, and what techniques work for

one, may not work for another. The current packages are broken down into Cinema 4D GO, SE and XL. The tutorial presented below uses Cinema 4D XL (v 5.21) however, I've attempted to leave it broad enough to be of value regardless of which package you use.

Setting up the Cinema 4D Workspace

To begin with, check out a rendering of the final project ([Image 1](#)). Although it's not absolutely true to nature, it does give a good feeling of the creature, and allows for all the necessary movement for the future study of believable animation.

When Cinema 4D first opens up, its default configuration ([Image 2](#)) is the standard isometric view of the modeling space. I like to work in four views, so click on the 4-Way View tool ([Image 3](#)). The resultant workspace is shown in



Image 1: Final Rendering of Dragonfly.

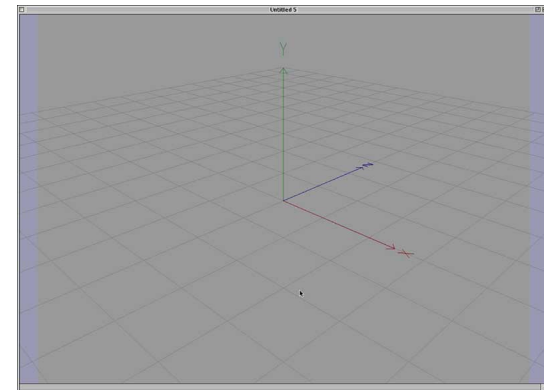


Image 2: Cinema 4D's default configuration.

Image 4. This allows for views along all axes as well as a basic isometric view.

Getting to It

C4D has fairly well developed spline and nurb capabilities for modeling. However, for this project, all the necessary shapes can be created through on-board primitives. It is with these primitives that we'll start building the dragonfly from the middle of the body.

Go to the Objects>3D Objects>Perfect Sphere (**Image 5**). C4D will then display a dialogue box asking for the size of the sphere to create (**Image 6**). Since this dragonfly will be by itself and will have nothing else in the scene to compare it to, any value here will do. I left mine at 100m to start out with.

Once the perfect sphere presents itself, we want to make it not so perfect. Select the Scale Active Element tool (**Image 7**) to adjust the size of the sphere. Immediately below the Scale Active Element

tool are the directional axis lock tools. Through these tools, you can lock or unlock different axes when it comes to movement, or in this case, alter an object. We want to start out by altering the y-axis only of our perfect sphere. Select the sphere from the object management palette (**Image 8**) and then adjust your tool palette to match **Image 9**. By disabling the x and z axes, we can be assured that those sizes don't change while we're changing the y-axis.

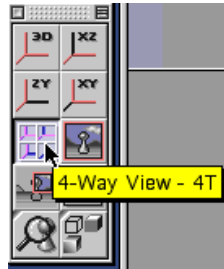


Image 3: 4-Way View Tool.

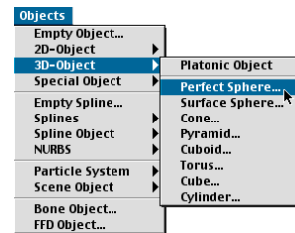


Image 5: Creating a Perfect Sphere.

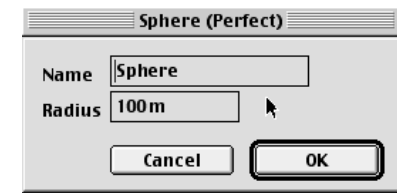


Image 6: Creation Dialogue Box.

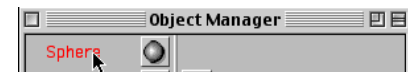


Image 8: Selecting Objects from Object Management Palette.

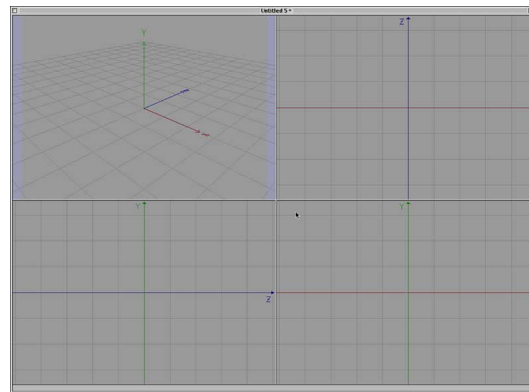


Image 4: 4-Way Workspace.

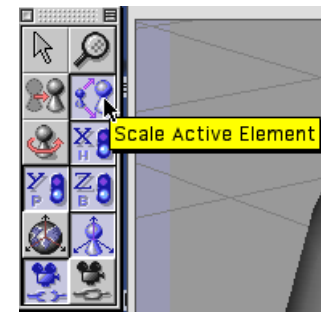


Image 7: Scale Active Element Tool.



Image 9: Adjusted Sphere.

With the Scale Active Element tool selected, click and hold on any window and move the mouse to the left. By moving to the left, you'll notice the object squashing ([Image 10](#)). Squash it down to a size that looks appropriate for the thorax of our dragonfly and release the mouse.

Change the locked settings to match [Image 11](#) and alter the z-axis of the sphere. Likewise alter the x-axis with the locked settings appearing like [Image 12](#), so that your sphere looks somewhat like a skinny egg (see [Image 13](#)). Now that we have the middle thorax of the body, the rest of the body shapes are simply a matter of comparatively altering of the sizes of other spheres.

Working towards the rear of the critter, create another identical sphere by copying (Edit>Copy) and pasting (Edit>Paste) the sphere. C4D pastes objects to the same co-ordinates that it copied from, so your project window will look the same but the Project Manager palette will show both a Sphere and Sphere.1 object present ([Image 14](#)).

The Name Game

Before we go any further, let's name these spheres to more appropriate names. Within the Object Manager

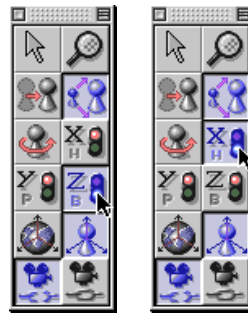


Image 11: Altered Locked Settings (left).

Image 12: Altered Locked Settings (right).

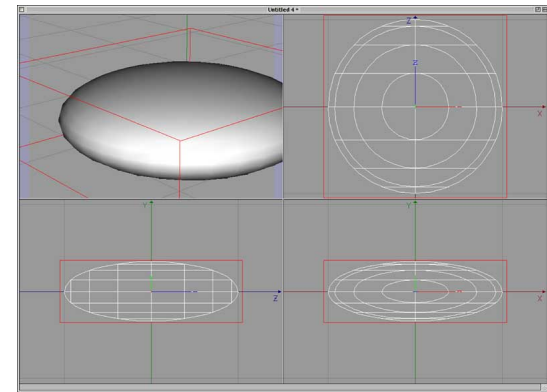


Image 10: Squashed Sphere.

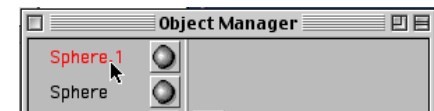


Image 14: Two objects named "sphere".

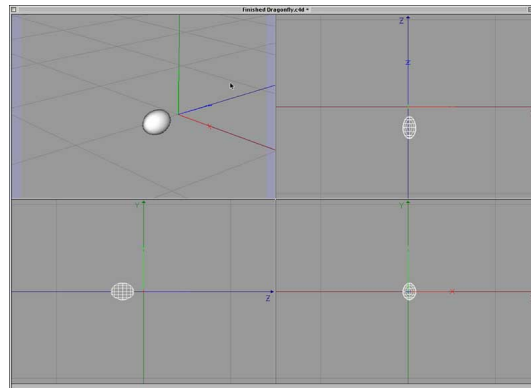


Image 13: Resulting Egg-like Sphere.

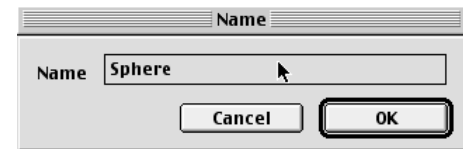


Image 15: Name Changing Dialogue Box.

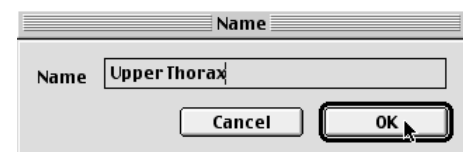


Image 16: "Upper Thorax".

palette, double click on the Sphere object. A dialogue box similar to [Image 15](#) will appear. Change the name to Upper Thorax ([Image 16](#)) and hit OK. The Object Manager window will then be updated to incorporate the changes you've made ([Image 17](#)). Double-click on Sphere.1 and rename that sphere to Lower Thorax.

Now select the Lower Thorax in the Object Manager palette ([Image 18](#)) and with the Move Active Element tool selected ([Image 19](#)) click anywhere within the Project window and drag the Lower Thorax object into place behind and below it's original position. Use the Scale Active Element tool with all 3 axes unlocked ([Image 20](#)) click and hold on any view of the Project window and drag to the left. This will uniformly alter the size of the Lower Thorax to be smaller. Adjust this Lower Thorax object to about 30% of the original ([Image 21](#)).

Now that the two sections of the thorax are created, let's move and rotate them

into a more appropriate position. Select the upper thorax in the Object Manager palette and using the Rotate Active element tool with only the x-axis unlocked ([Image 22](#)) turn the object about 15 degrees ([Image 23](#)). To do this, simply click and drag upward from the right view window.

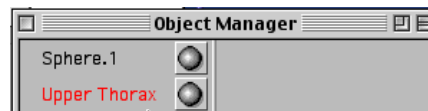


Image 17: Changed Object Manager.

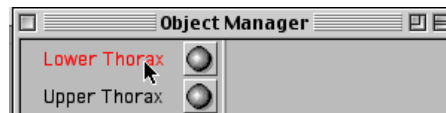


Image 18: Selected Lower Thorax.

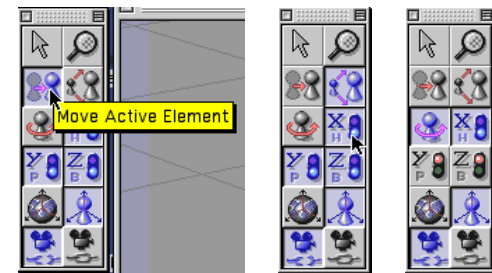


Image 19: Move Active Element Tool (left).

Image 20: All three axes locked (middle).

Image 22: Only x-axis unlocked (right).

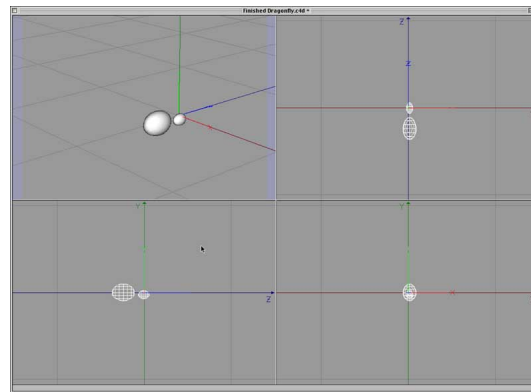


Image 21: Smaller Lower Thorax.

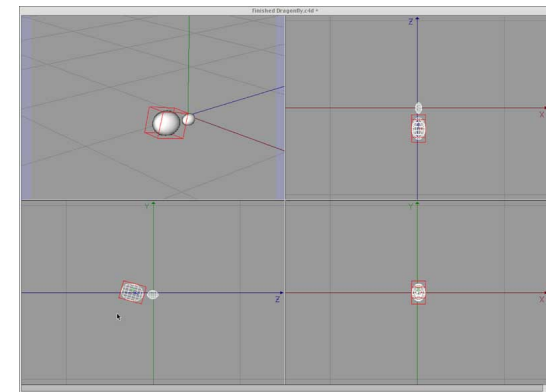


Image 23: Turned object.

Follow the same step for the lower thorax and then move (using the Move Active Element tool) it into position behind the upper thorax section (Image 24).

Creating the Tail

To begin building the tail, copy and paste the lower thorax object, and use the Move Active Element tool and the Rotate Active Element tool to move and rotate the pasted object to match Image 25. With the scale active element tool, slim the object down so that it appears in the shape of a “Tic-Tac” (Image 26). The easiest way to do this, is to adjust the axis locks to appear like Image 27, and then with the new object selected (through the Object Manager) click anywhere on the top view of the project window and hold and drag to the left. Adjust the object so that the model looks something like Image 28.

It’s important to get this part of the model just right as it will be an integral part of the rest of the tail. Speaking of which, rename the newly altered sphere to Tail1 in the Object Manager palette to avoid future confusion.



Image 27: Locked Axes.

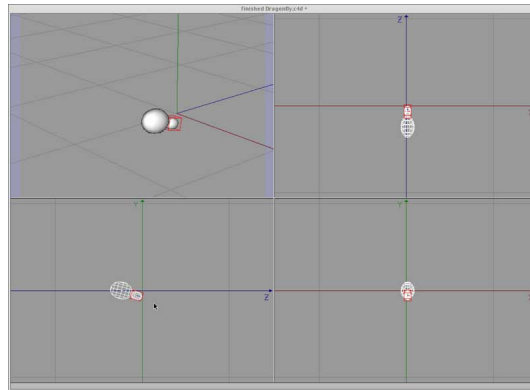


Image 24: Positioned Lower Thorax.

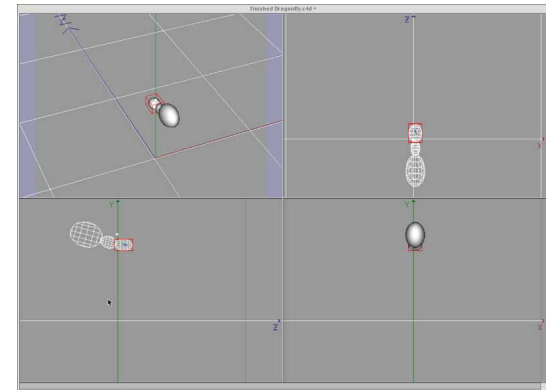


Image 25: Start of the Tail.

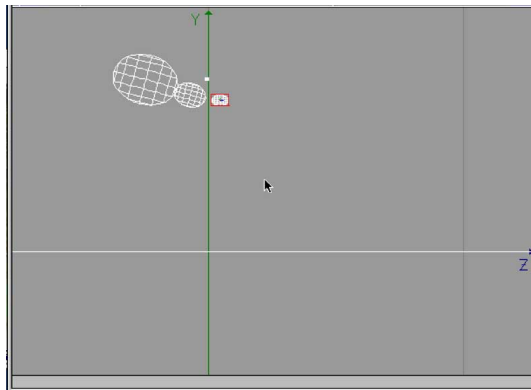


Image 26: The Tic-Tac.

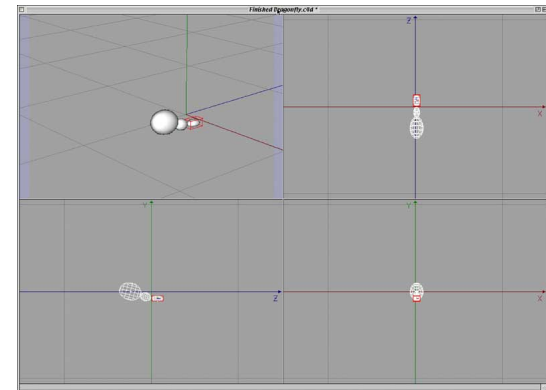


Image 28: Adjusted Tail Beginnings.

Duplication in Cinema 4D

Image 29 shows the Coordinates Manager palette for the new beginning tail segment (Tail1). As I've modeled it, the Z length of this tail object is 12.5m long. This value is important as we need to use it for the Duplicate function in Cinema 4D.

With Tail1 selected, go to Tools>Duplicate (**Image 30**). The resulting dialogue box (**Image 31**) allows for the specification of how many copies of the selected item you wish to make, as well as if you'd like to offset them, turn them and/or scale them. Select 8 for the number of copies to make and offset them 12.5m (the z-axis length of the object). The resultant model can be seen in **Image 32**.

Now use the Move Active Element and Rotate Active Element tools to adjust the new parts into position to create a nice smooth curve (**Image 33**). Organize this newly created tail by creating an Empty Object (**Image 34**) and name it Tail

(**Image 35**). The object manager will then show this empty object as well as all the duplicated tail segments (**Image 36**). You can tell the empty object by the triangle symbol next to the name of the object. Now assign

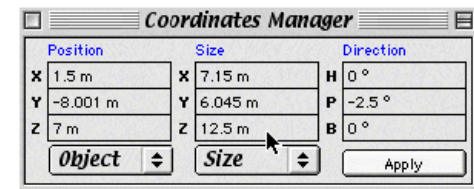


Image 29: Coordinate Manager palette.

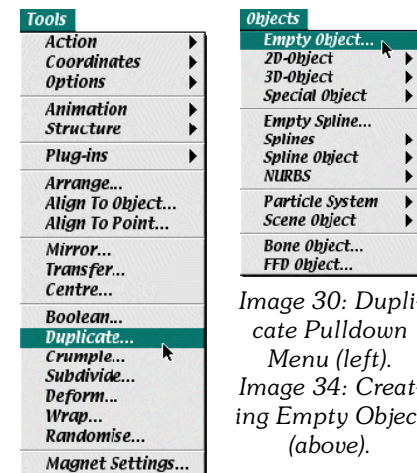


Image 30: Duplicate Pulldown Menu (left).
Image 34: Creating Empty Object (above).

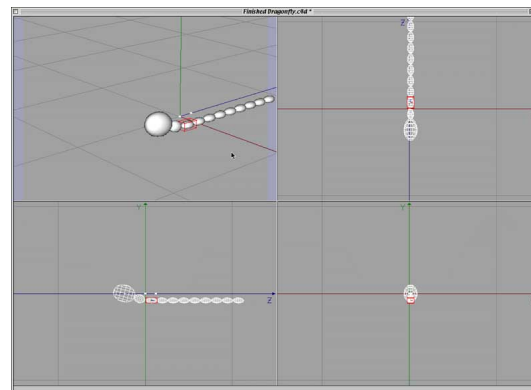


Image 32: Duplicate Resulting Model.

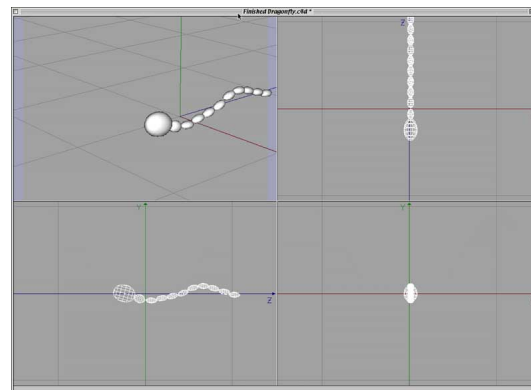


Image 33: Adjusted Tail.

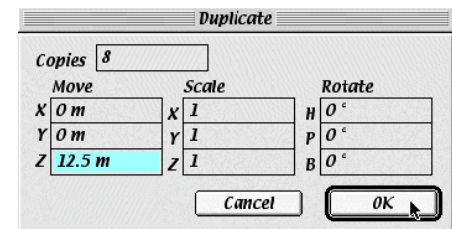


Image 31: Duplicate Dialogue Box.

all the tail parts to be children of the Tail (empty object) parent. **Image 37** shows the drag and drop method of grabbing the child and dragging it to the new parent, and the resultant cursor alteration indicating it's induction into the parent's group. When all the tail segments have been assigned to be children of the empty object Tail, the object group should appear like **Image 38**. Assigning parent/children hierarchies become especially important in animation. Even in modeling, this sort of organization becomes invaluable: looking at the extant model, I decided that the tail is just too long. By clicking on the Tail parent and using the Scale Active Element tool, I can adjust the overall length as a unit rather than having to adjust each separate joint individually (**Image 39**).

Getting Ahead

Now it's time to start working on the area in front of the thorax. To do this, we'll continue to use the trusty sphere we've been working with thus far, but truncate it

by using Cinema 4D's boolean modeling functions. First, copy the thorax sphere and position it in front (**Image 40**). Using the Rotate Active Object tool, tilt the object so it's at an even keel



Image 35: Renamed to Tail.

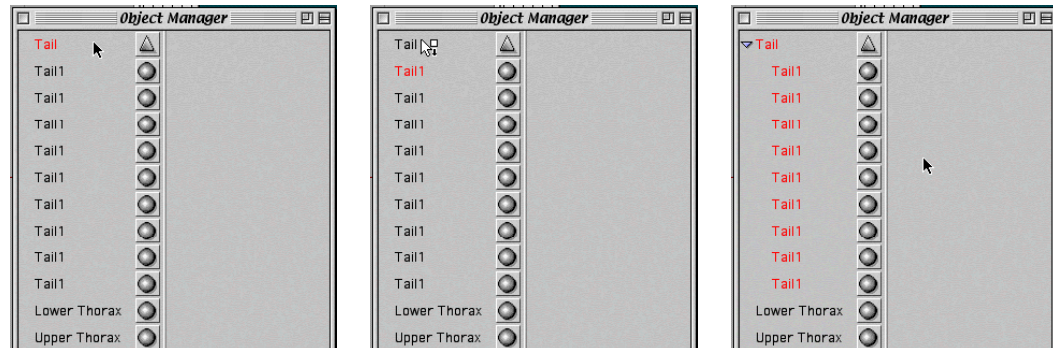


Image 36: Duplicated Tail Segments. Image 37: Drag and Drop. Image 38: Tail Object Group.

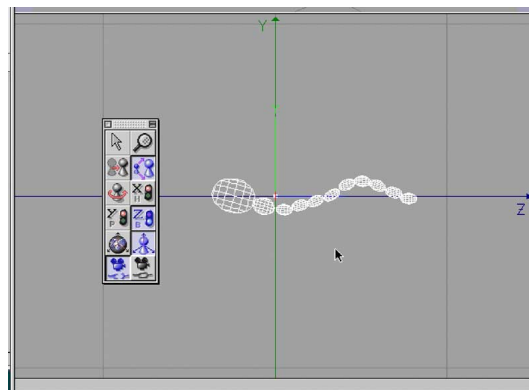


Image 39: Adjusted Unit.

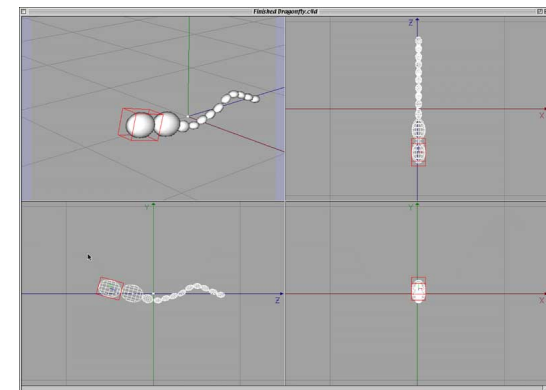


Image 40: Positioned Eyes.

(Image 41). Or you can alter the angle that it is turned in the Coordinates Manager by zeroing out the HPB fields (Image 42). Now adjust the side of this object to be wider and taller than the thorax but less deep (Image 43). The idea here is to create one object to serve as both eyeballs, rather than making a head with eyeballs on it. Rename this new shape Eyeballs in the Object Manager.

We now want to chop off the back part of the eyeballs, so that there appears to be a flat edge that butts up against the thorax. Create a new object by using the Object>3D Object>Cube pull down menu (Image 44). In the subsequent dialogue box, enter an appropriate value. For my model, 20m was plenty (Image 45).

The Pluses and Minuses of Boolean Modeling

Boolean modeling is one of the older, yet most effective methods of making fairly complex shapes within 3D modeling applications. Unfortunately, the technology doesn't always keep up with the theory behind addi-

tive and subtractive modeling, but Cinema 4D is one of the most reliable. The idea behind boolean modeling, is to add or subtract one three dimensional shape from another. In this case, the idea is to use the cube as the cutting object, align it with the sphere so that their intersecting areas is the undesired area, and then use boolean subtraction.

For illustrative purposes, in Image 46 I've moved the eyeballs away from the rest of the body, so that the effects of boolean modeling can be clearly seen. In addition, I've aligned the cube into position to make the desired cut.

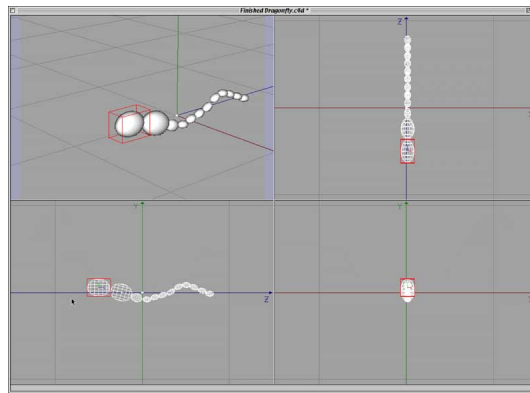


Image 41: Tilted Eye Object.

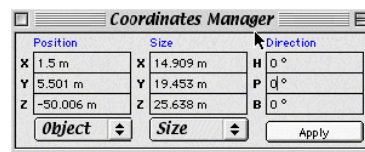


Image 42: Zeroed HPB.



Image 44: Creation of a Cube.

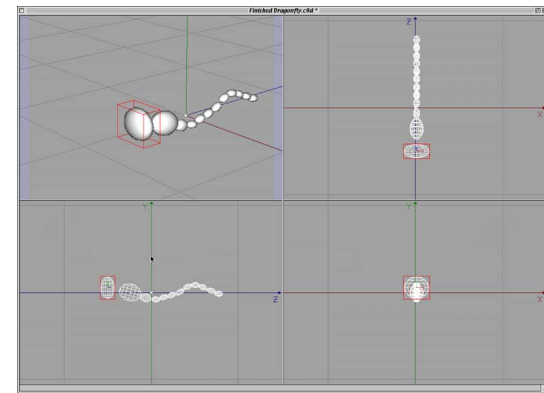


Image 43: Adjusted Eyes.

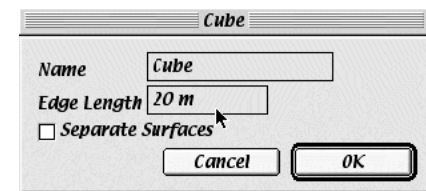


Image 45: Created Cube.

One of the most important issues of boolean subtraction is to make sure that the subtracting element (in this case the cube) is big enough to make a clean cut without leaving indents of its corners. To ensure this, I increased the length of the x-axis so that it extended well beyond either side of the eyeball (Image 47). Since the subtracting element will completely disappear after the boolean operation is performed, it doesn't matter if there is excess; in fact, I recommend it.

Once the two objects are in position, go to Tools> Boolean (Image 48). The Boolean Dialogue Box gives several choices of different boolean functions to perform. In this case, we want to do A Minus B. "A" will be the eyeball object that we subtract "B" (the cube from). Since we have labeled the eyeballs as such, begin typing "eye" in the A dialogue box and C4D will anticipate the rest (Image 49). Likewise, if you begin typing "cube"

in the B dialogue box, C4D will fill in the rest (Image 50). This is a good reason to label objects as you go. It's much easier to know that you have the right object selected for a boolean operation when they are appropriately labeled. Click on OK when both fields are complete.

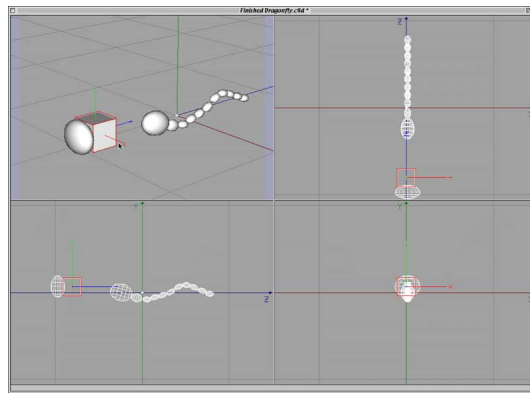


Image 46: Separated Eyes.

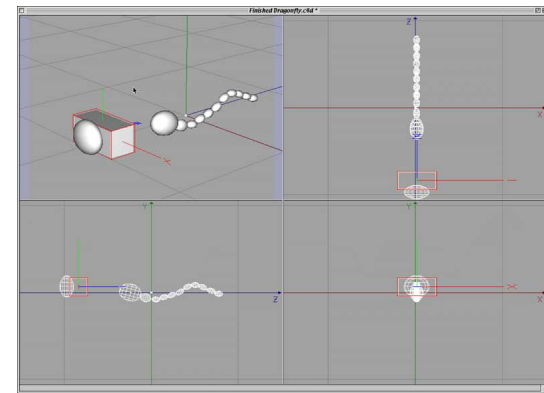


Image 47: Extended Cube.

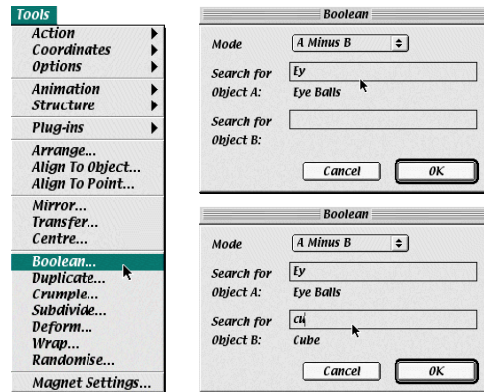


Image 48: Boolean (left). Image 49: Entering Eye (top). Image 50: Entering Cube (bottom).

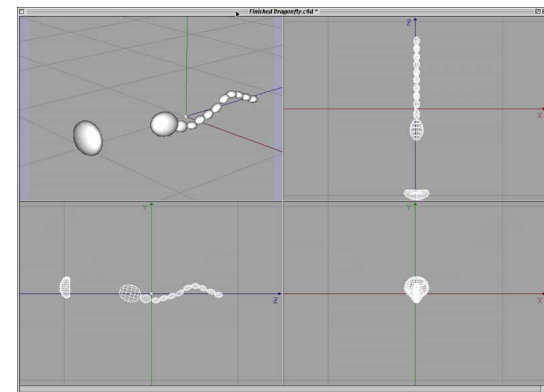


Image 51: Resulting Boolean Object.

The resultant object left by the boolean subtraction is shown in [Image 51](#). Notice in the Object Manager, that a new object called Eye Balls-Cube has been created ([Image 52](#)). This object is actually the object created by the subtraction. Also notice, that the original objects, Eye balls and Cube are still listed in the object manager. However, a Display Property has been created for each. If you double click on the Display Property button ([Image 53](#)) you can see that C4D will remember the object, but has hidden it in both the working area and rendering zones ([Image 54](#)).

Display Properties

A nice feature of C4D is the ability to hide objects you don't wish to see without deleting them altogether. By clicking on the Object Manager window so that it is the active area, and then holding the Option-Command buttons down, you will get the pulldown menus native to the Object Manager's palette ([Image 55](#)). Go

to Function>New Property>Display ([Image 56](#)). C4D will then display a dialogue box ([Image 57](#)) that will allow you

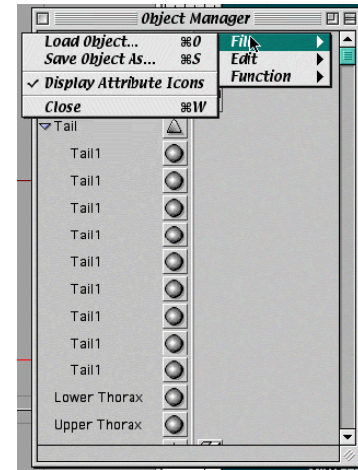
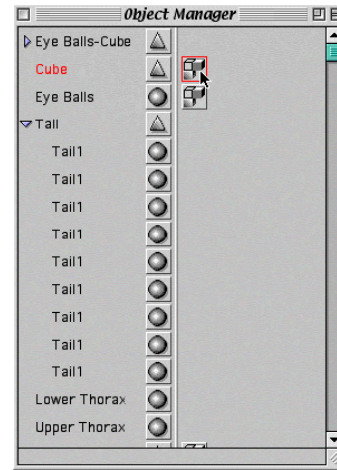
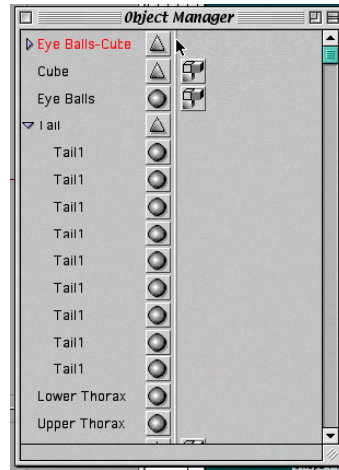


Image 52: Newly Created Object. Image 53: Display Property Button. Image 55: Object Manager's Palette Pulldown Menus.

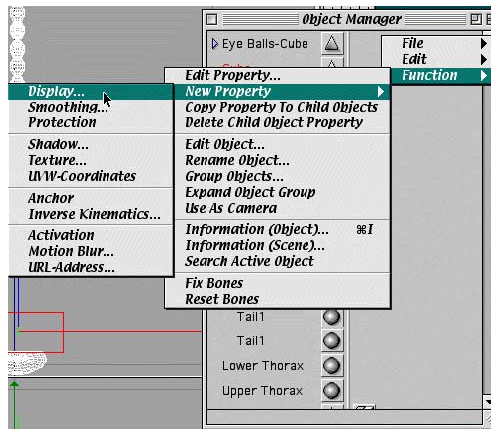


Image 56: Creating Display Property.



Image 54: Display Dialogue. Image 57: Display Property Dialogue.

to hide an object in the working area for when it comes time to render. This allows you to work with objects buried deep within other objects while modeling, or create objects to use as construction objects that won't show up during rendering.

Back to the Story

Image 58 shows the newly created Eyes (renamed from the former Eye Balls-Cube object) moved into place. Now that it is actually in place, it seems to be too large in comparison to the thorax. To correct this, I can select Eyes and using the Scale Active Element tools, alter the size of the object. Once boolean objects are created, they can then be altered like any other object. The result of my alterations is seen in Image 59.

Now that the eyes are created, I want to add a couple of other simple spheres

that will serve as the nose and mouth of the dragonfly. Image 60 shows the created and placed spheres, created through Objects>3D Objects>Perfect Sphere. Image 61 is the Object Manager up to this point including the new names for the recently created objects.

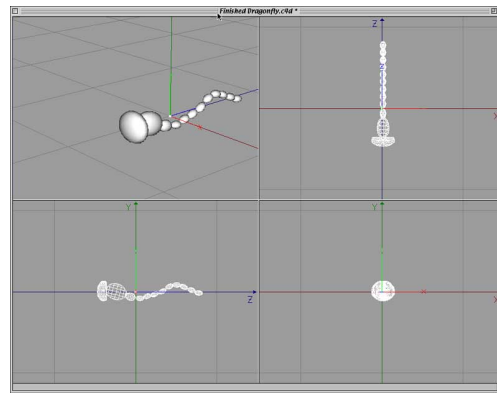


Image 58: Created Eyes.

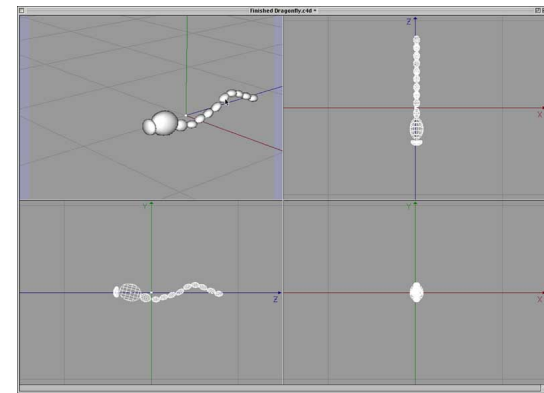


Image 59: Altered Eyes.

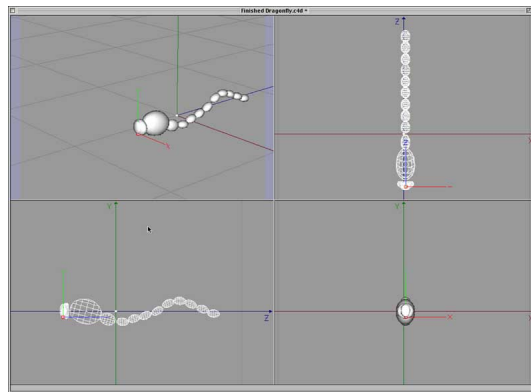


Image 60: Creation of Nose and Mouth.



Image 61: Renamed Nose and Mouth (left).

Image 62: View Tool (right).

Navigating Within the Model

When working with small delicate parts of the model, the standard view that we've been using so far just doesn't suffice. C4D has several ways to maneuver around the object you are building. One is through the View tool (Image 62). When you click this tool, it will display a list of choices shown in Image 63. The resulting cursor (Image 64) will let you pick which window to make the changes in. For instance, when I was adjusting the mouth, I used the View tool to zoom in on the front and side views so that I could accurately place the embedded sphere into the appropriate location.

Another nice way that C4D allows for navigation is through the Camera tool (Image 65). When this tool is selected, you can use any of the Move, Rotate, or Scale Active Element tools to pan or dolly the point of view from within any of the standard views. This is especially effective when looking through the isometric view. Using the Rotate Active Element tool with the view tool, you can quickly rotate around the object to view it's proportions and relative locations.

Winging It

Now that the body is essentially done, we'll create the wings with a slightly different set of tools. In Adobe Illustrator, I used the Pen tool to create a closed path in the shape of the wing that I wanted (Image 66). By saving the file as an Illustrator EPS, I was able to import the file

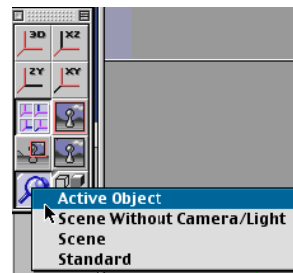


Image 63: View Tool Choices (above).

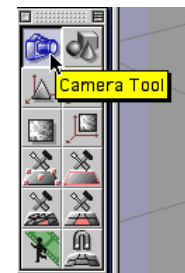


Image 64: View Tool Cursor (right).



Image 65: Camera Tool (above right).

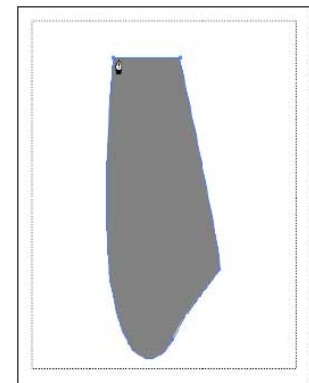


Image 66: Illustrator Created Wing Path (far right).

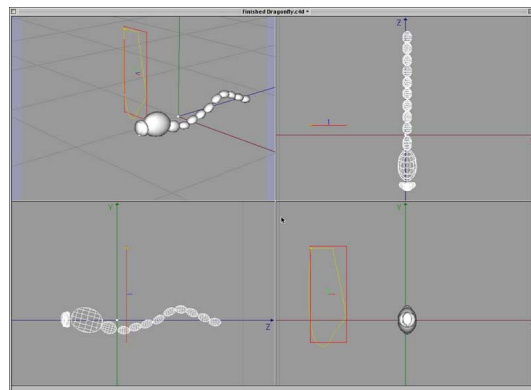


Image 67: Scaled Path.

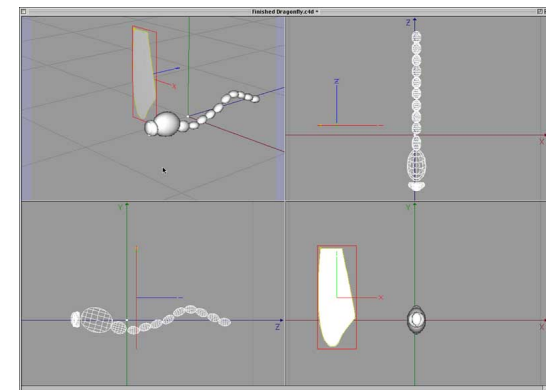


Image 68: Skinned Path.

through C4D's File>Import. When the wing was brought in it had a couple of problems. First of all it was huge! I used the Scale Active Element tool to scale it down to a useful size (Image 67). The problem here is that the wing is hollow; it is like a wire hanger bent in the shape of a wing. C4D by default imports paths hollow like this.

Using Objects>Spline Object>Skin Object... I skinned the object so that it had matter filling in the wireframe (Image 68). When you use this tool, you'll be given a dialogue box that allows for a lot of flexibility. For the sake of brevity, just click OK for this exercise.

Now that the skin has been created, you'll notice that if you begin to move it, it leaves the original Illustrator path behind. You can group the two together through parent/child relationships, or you can simply delete the original path, which is what I did.

Rotate the wing into position on the body of the dragonfly so that it's the front of the two sets of wings (Image 69). In my case, I found that at this point, my wing was too fat for the look I was going for so I used the Scale Active Element to slim it down.

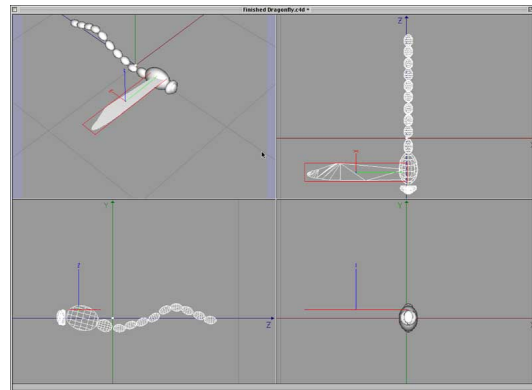


Image 69: Positioned Front Wing.

Rather than importing other objects, copy the wing and move it back behind the first wing. Then scale it down a bit since the back wings are smaller than the front (Image 70). I also rotated my back wing a little bit. Don't forget to continually update the names of your objects in the Object Manager. Since these two wings will always move in conjunction, make the smaller a child of the larger wing.

Mirror, Mirror...

Now that one side is created, we can easily make a symmetric set of wings with the Mirror function. Select the larger wing in the object manager (make sure that the smaller wing is the child) copy it and then paste it. Click on the project window's menu bar and go to Tools>Mirror. The dialogue box that comes up allows you to choose whether to mirror along an axis within the object, or to mirror along the absolute planes of the virtual world of

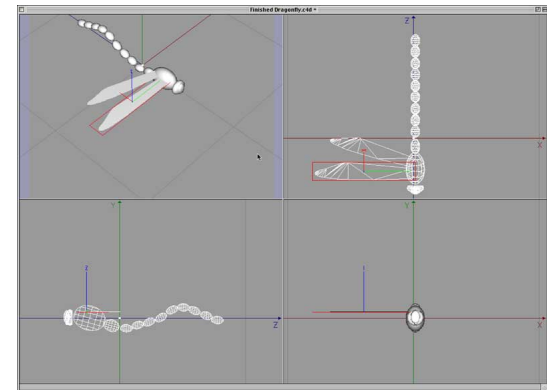


Image 70: Scaled Back Wing.

your model. In this case I want to mirror along the YZ axis of the world of my model. The resulting mirrored object will show up like [Image 71](#). Using the Move Active Element tool, I can pull the new wings over into place.

Now, although the model is far from complete (i.e. No legs) it has a simple enough elegance to move on to texturing.

C4D s Textures (A Brief Overview)

To demonstrate C4D's texturing capabilities, I'm going to use some simple textures pulled off a variety of web sites. Many times the kind of textures available on websites are already tiled so you don't have to worry about nasty seams.

In the Materials Manager, hold the Option-Command keys down and select File>New Material. A white ball will show up in the Manager called New ([Image 72](#)). Double click on the word New, and rename the texture Tail.

To actually create what the texture will look like, double click on the ball part of the icon. You will

then be shown the Edit Material dialogue box. The ball in the top right hand corner gives a preview of what the texture will look like. Through the various levels of this Edit Material box, you can assign all the necessary characteristics.

To use the different areas of texturing, you must activate them through the check boxes below the texture preview. All of these characteristics can be accessed through the pop-up menu at the bottom of the box ([Image 73](#)).

For the tail of the dragonfly, I want to use a patina-like image pulled from the web. In the color section

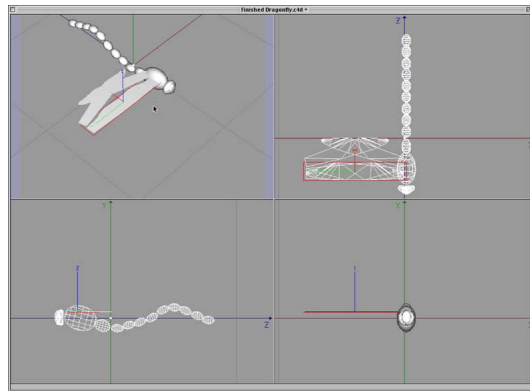


Image 71: Mirrored Wing Set.

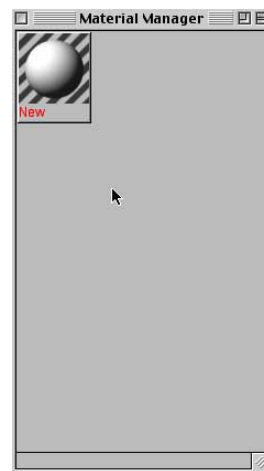


Image 72: Material Manager.

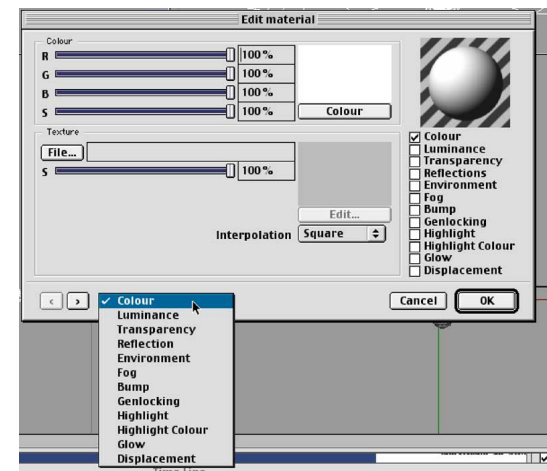


Image 73: Material Characteristics.

of the Edit Material box, click on the File button about halfway down. Find the image you wish to use as the color map and click OK. When this is done, you'll be returned to the Edit Material box where although you'll be able to see the image in the Edit window, the ball will remain the same color. This is because it attempts to use the color defined before using the color map. Pull the S% slider down to zero (S=Strength) and the preview sphere will show the color map (Image 74).

You may add other traits if you wish, but for now, we will leave this texture as is. When you click OK, you will see in the Materials Manager box your newly altered texture. Apply the texture by clicking and dragging the texture up to the object (within the Object Manager) you wish to apply it to. In this case, if we drop it on the group Tail, we will be presented with a dialogue box that allows us to map the texture. Click OK for now, as this can always be altered later. Since Tail is the parent, all the children will inherit this texture. You should be able to see the change in your project window (Image 75).

Repeat this process for all the other objects you wish to apply separate textures to. Your Materials Manager should look something like Image 76. The Object Manager should resemble Image 77. Whenever you apply a texture to an object, the assigned texture will appear in a small preview window to the right of the object within the Object Manager.

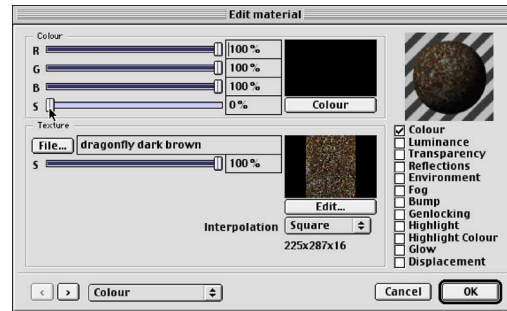


Image 74: Color Map.

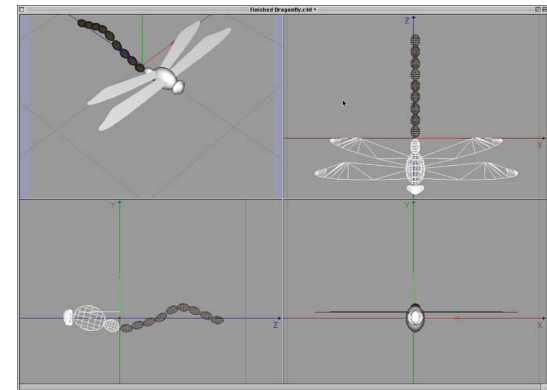


Image 75: Altered Texture.



Image 76: New Materials Manager.



Image 77: New Object Manager.

Conclusion

Pretty simple eh? All in all, once you get the idea behind this sort of basic modeling with primitives, boolean addition/subtraction and imported paths, this sort of project wouldn't take more than 15 minutes. Unfortunately, as with any program there is a learning curve to get over in order to truly create. In future tutorials we will discuss issues of animation within C4D and how they can be used to create realistic movement for any animal including the dragonfly.

Biography

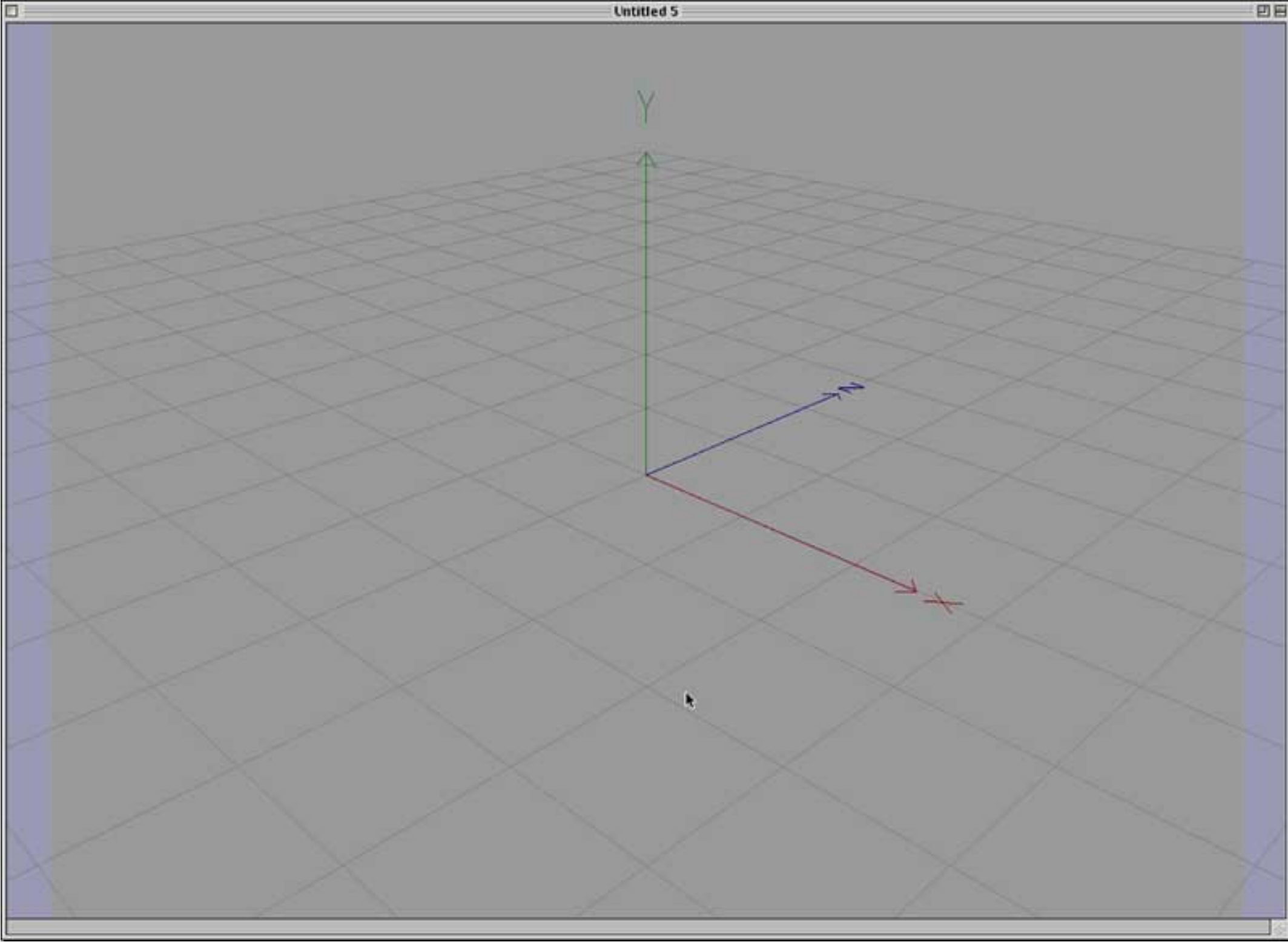
Born in Western Samoa, Adam has traveled extensively and loves to do so. He loves the art and culture of South Eastern Asia and finds great aesthetic value there. After his escapades, Adam settled down to pursue an education in Theatre Set and Lighting Design.

After completing an undergraduate degree in theatre set and lighting design, Adam is deep in the throws of a graduate degree at Utah State University in the Graphic Design program. Part of the newly formed Digital Arts emphasis, he is using 3D heavily to investigate the physics of movement in animation. His programs of choice are Strata Studio Pro (v2.5), Electric Image and Cinema 4D, although he's a strong advocate of "content over tool".

AWATKINS@cc.usu.edu.

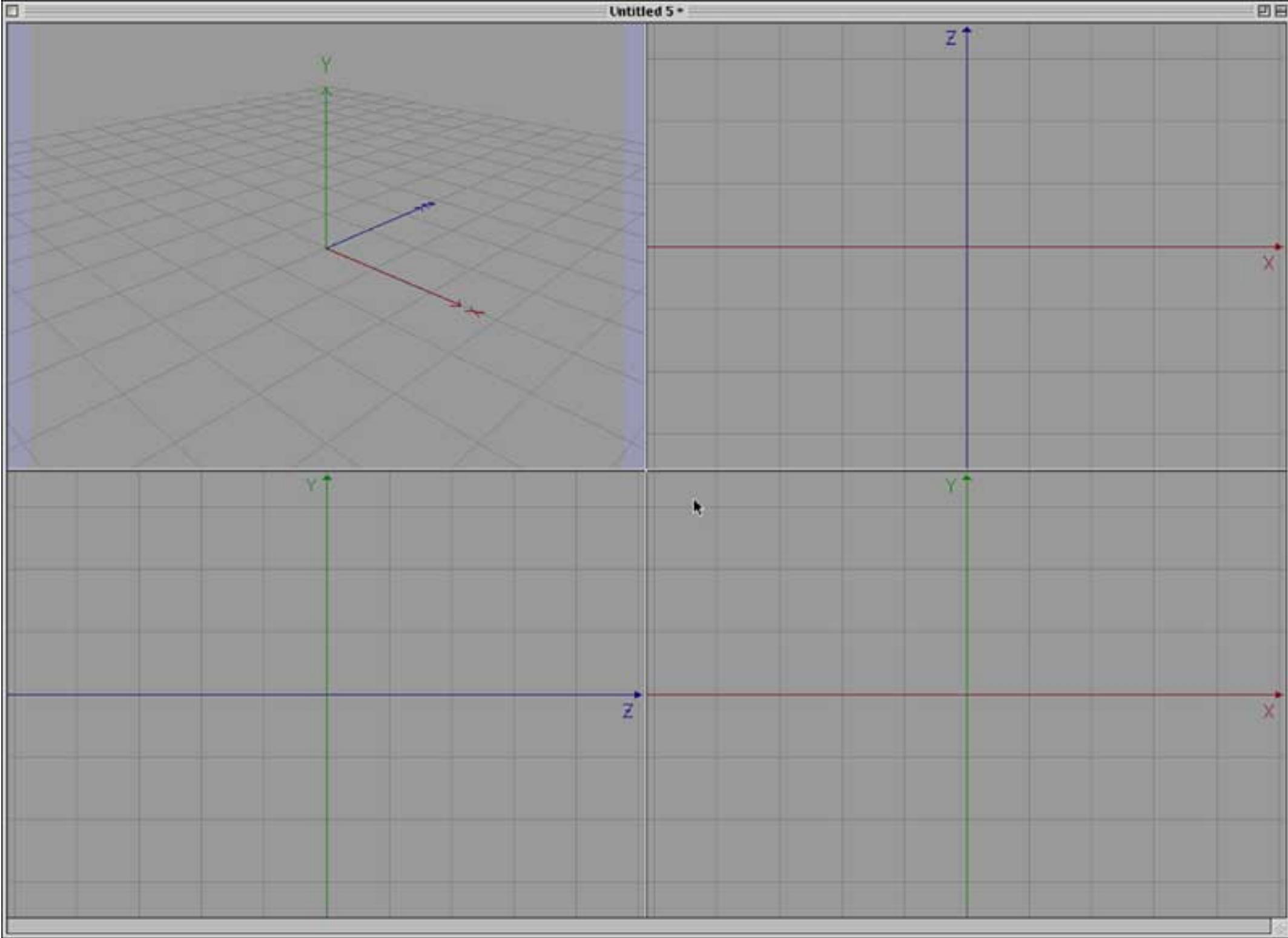








4-Way View - 4T



Objects

Empty Object...

2D-Object ▶

3D-Object ▶

Special Object ▶

Empty Spline...

Splines ▶

Spline Object ▶

NURBS ▶

Particle System ▶

Scene Object ▶

Bone Object...

FFD Object...

Platonic Object ▶

Perfect Sphere...

Surface Sphere...

Cone...

Pyramid...

Cuboid...

Torus...

Cube...

Cylinder...

Sphere (Perfect)

Name

Sphere

Radius

100 m

Cancel

OK



Scale Active Element



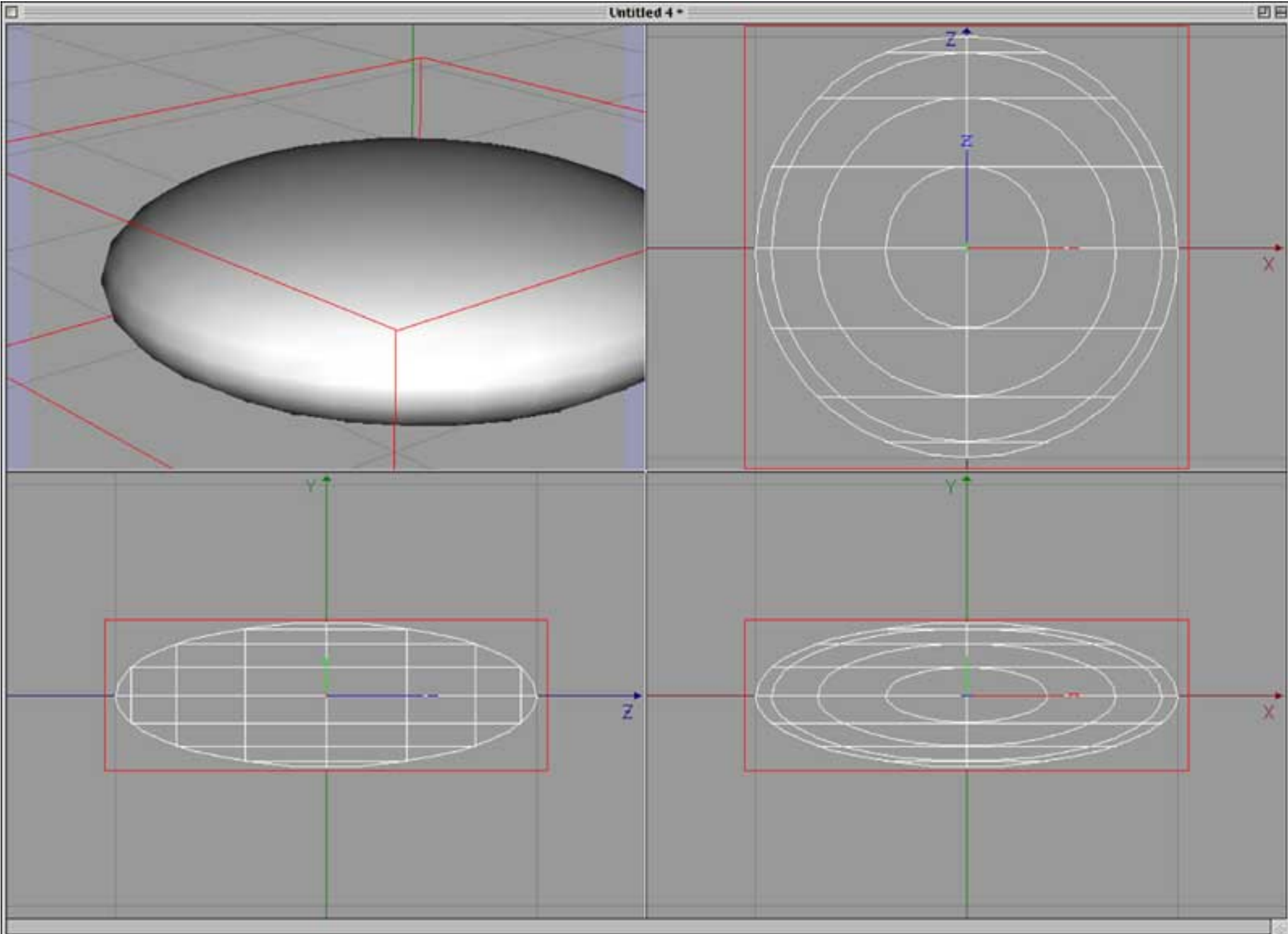
Object Manager



Sphere

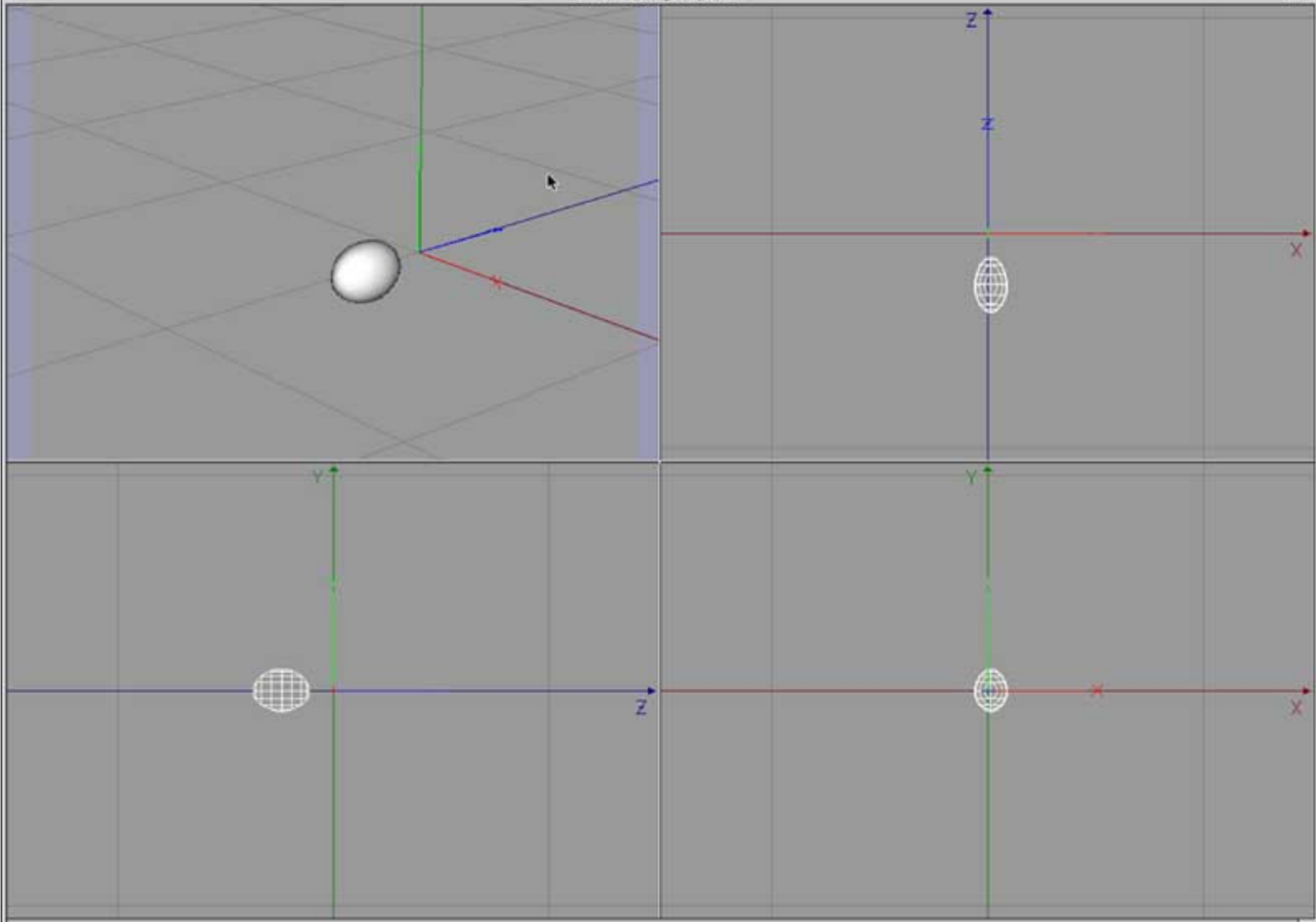














Object Manager



Sphere.1



Sphere



Name

Name

Sphere



Cancel

OK

Name

Name

Upper Thorax

Cancel

OK



Object Manager



Sphere.1



Upper Thorax





Object Manager



Lower Thorax



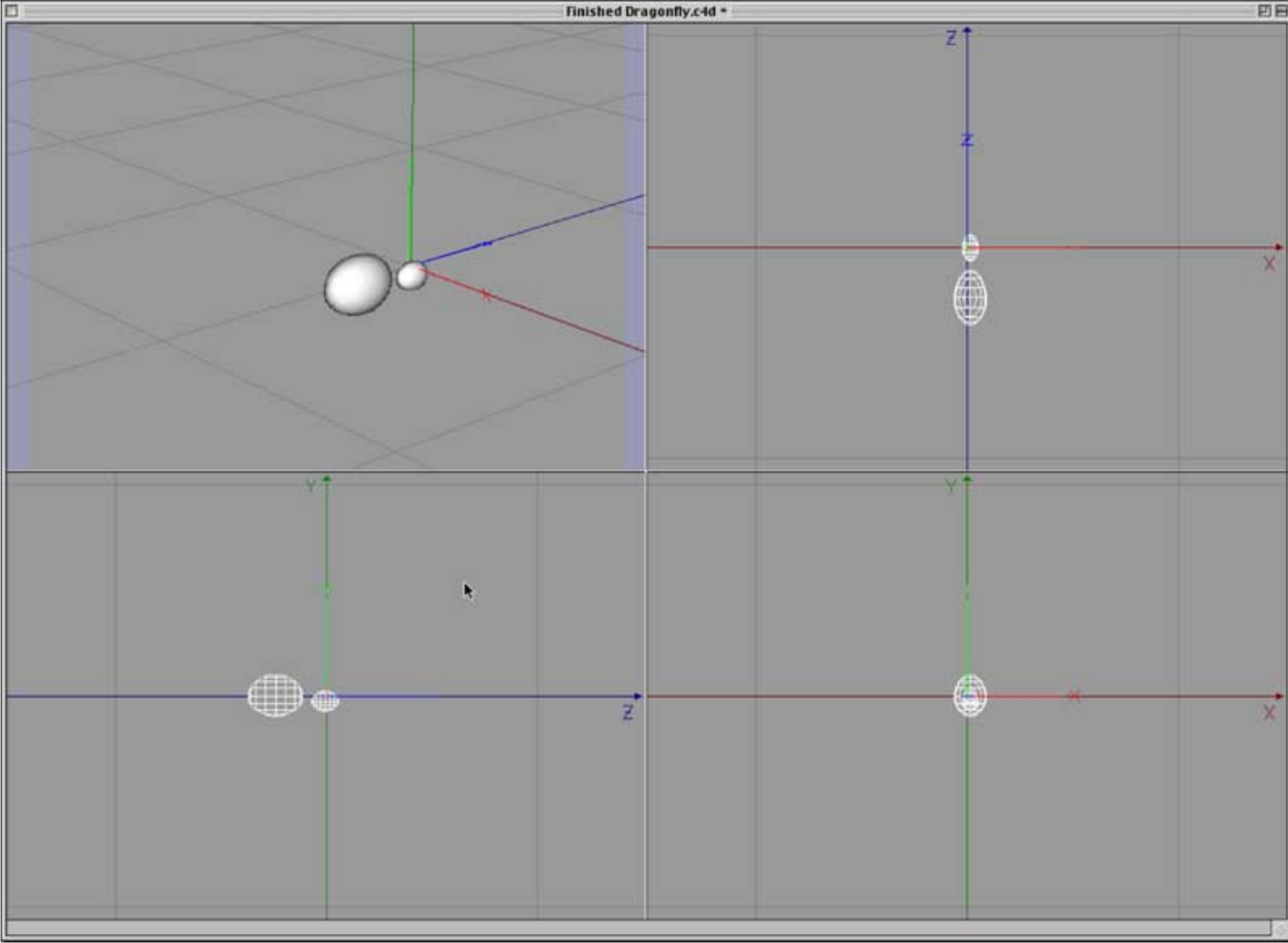
Upper Thorax



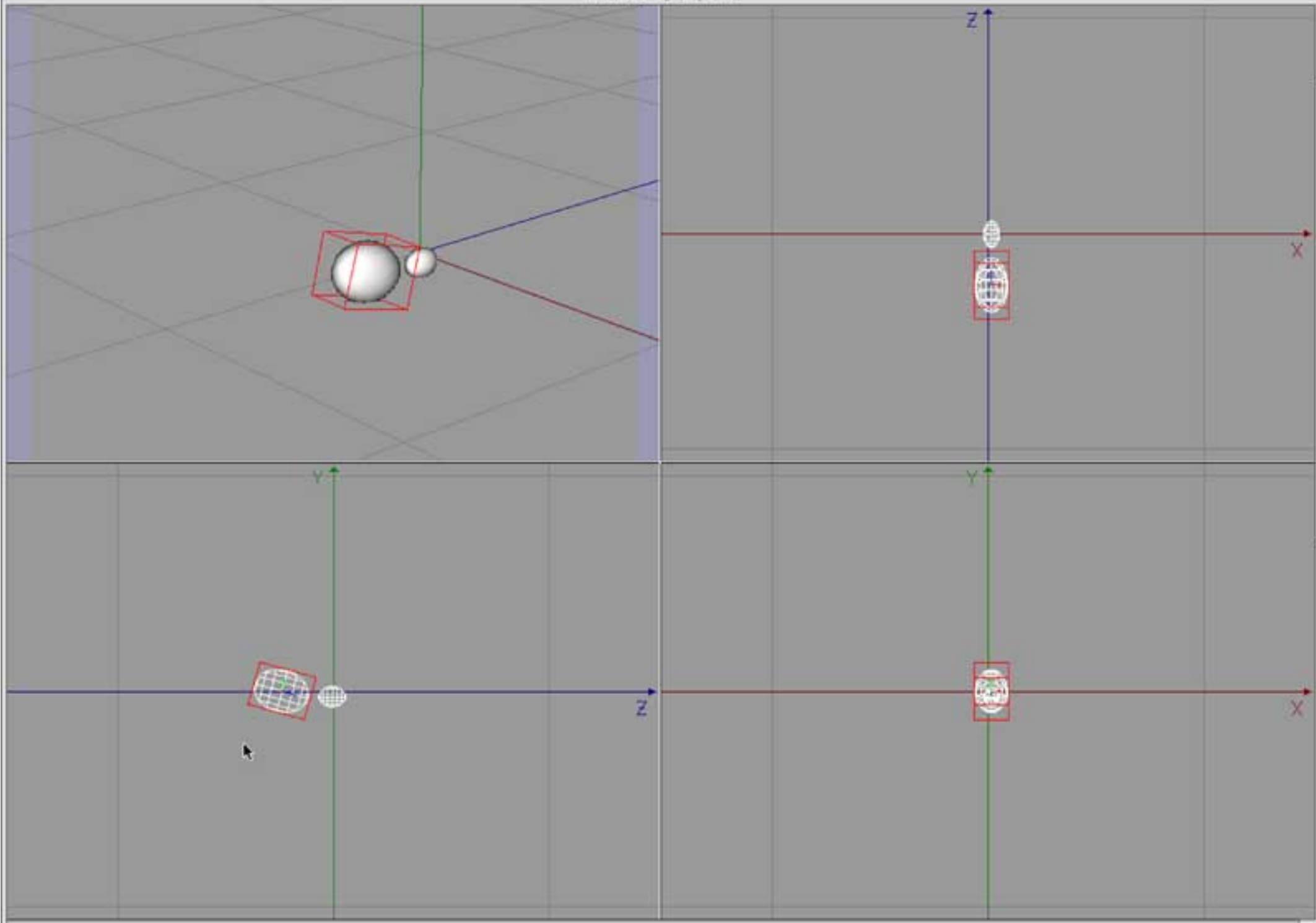


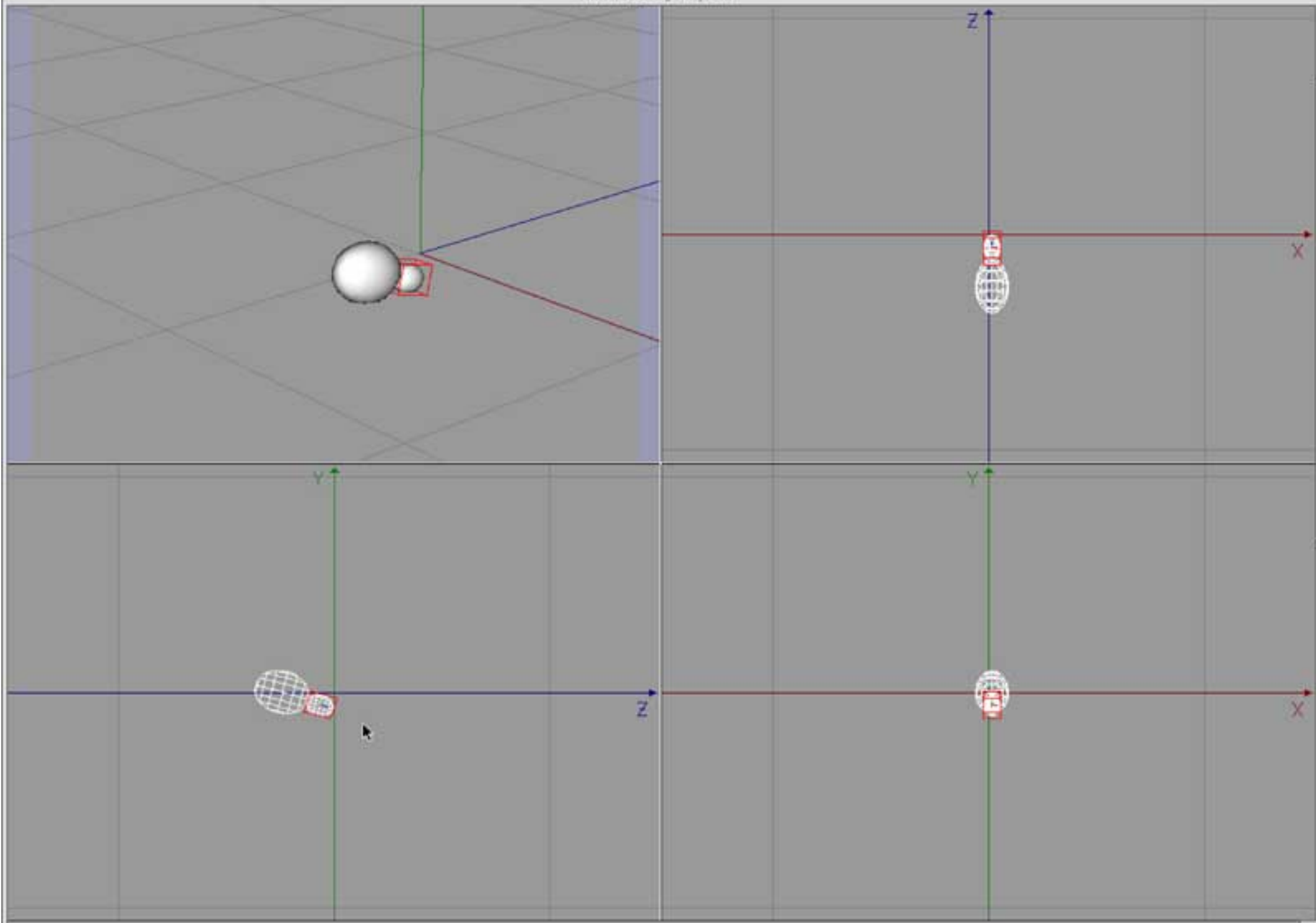
Move Active Element

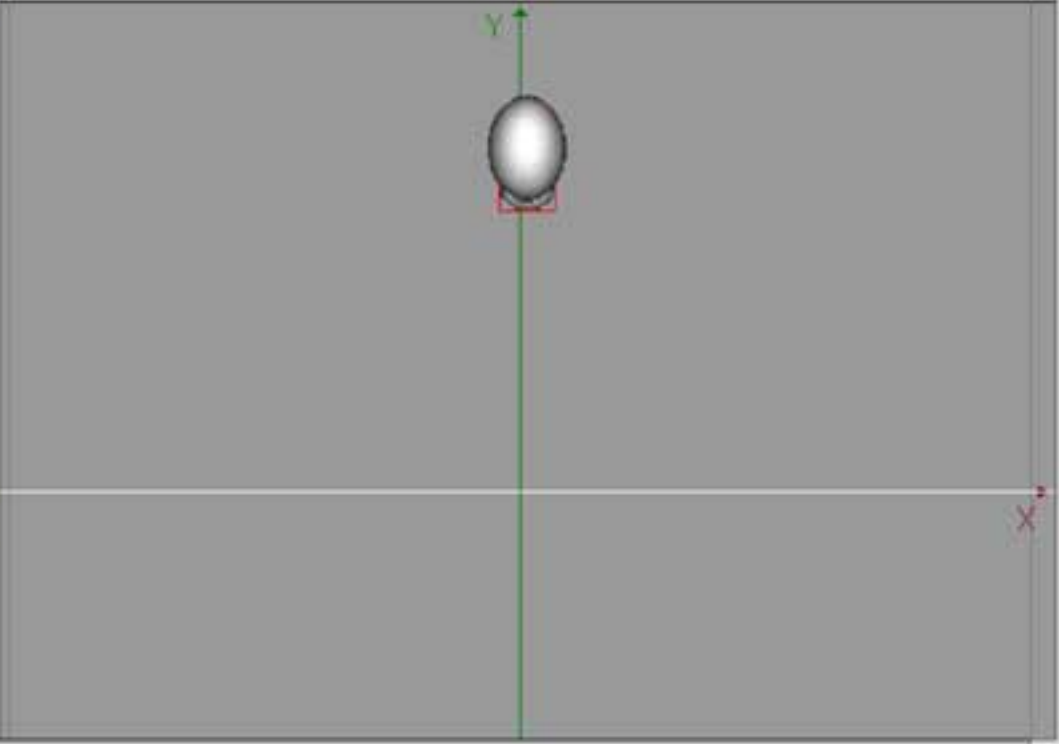
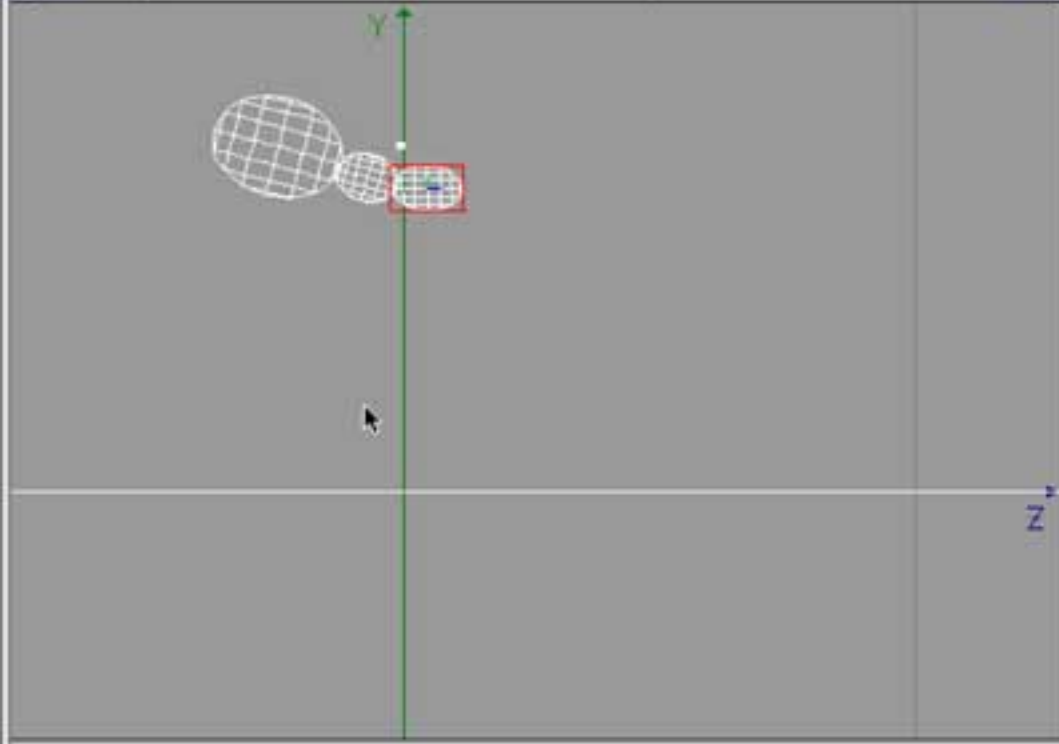
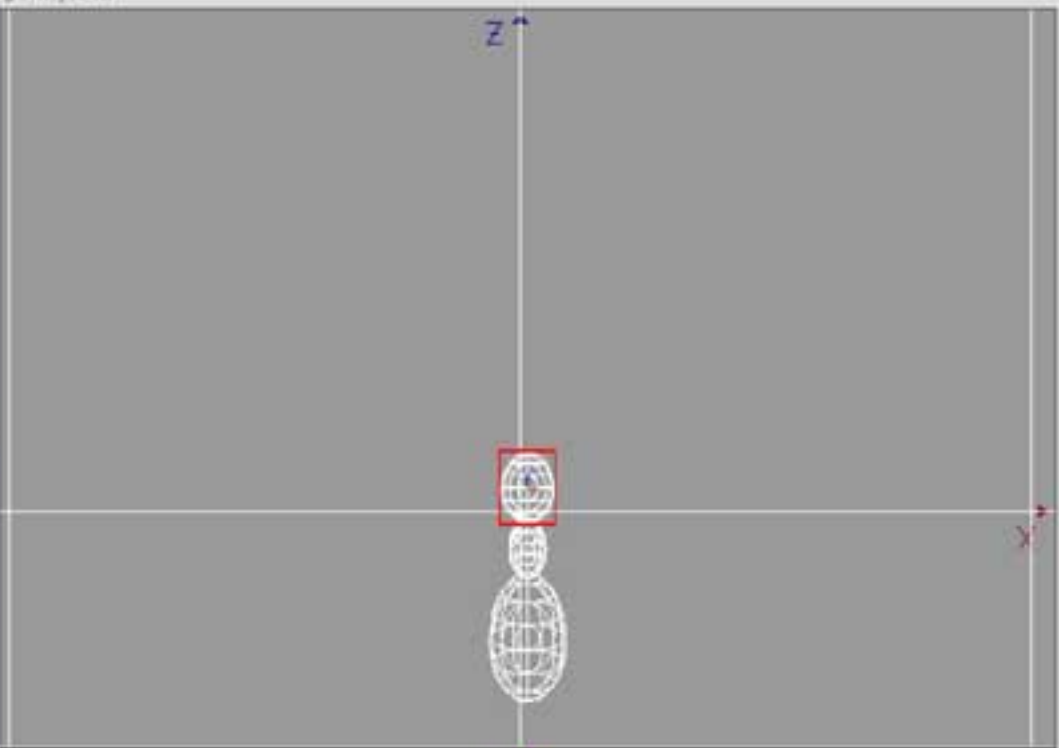
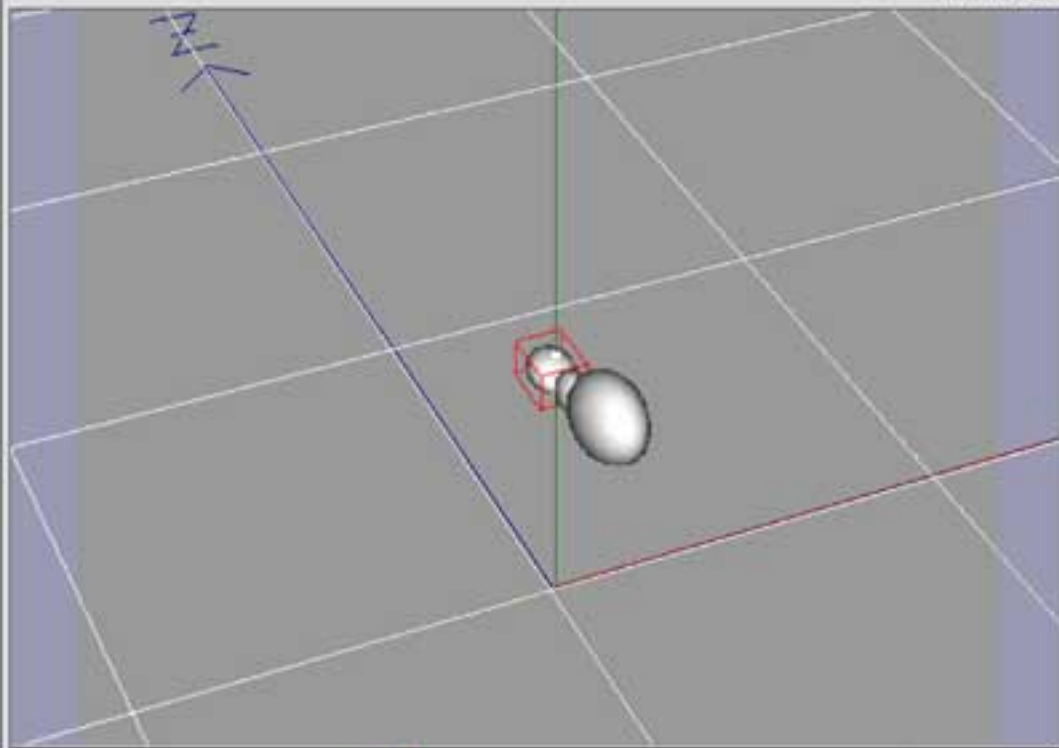


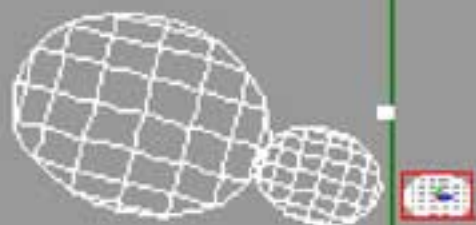




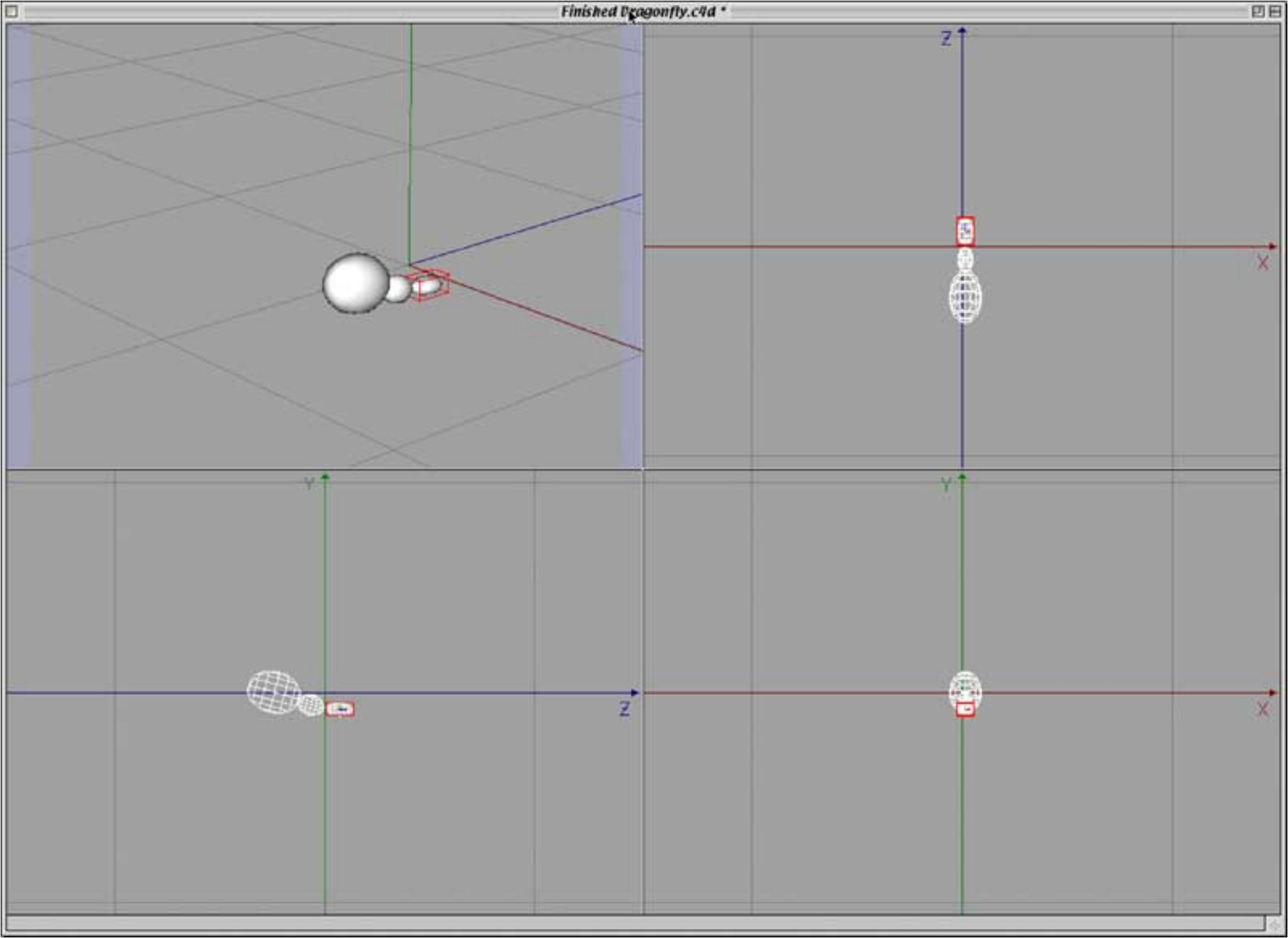














Coordinates Manager



Position

X

1.5 m

Y

-8.001 m

Z

7 m

Size

X

7.15 m

Y

6.045 m

Z

12.5 m

Direction

H

0 °

P

-2.5 °

B

0 °

Object



Size



Apply

Tools

Action ▶

Coordinates ▶

Options ▶

Animation ▶

Structure ▶

Plug-ins ▶

Arrange...

Align To Object...

Align To Point...

Mirror...

Transfer...

Centre...

Boolean...

Duplicate...

Crumple...

Subdivide...

Deform...

Wrap...

Randomise...

Magnet Settings...

Duplicate

Copies

8

Move

X 0 m

Y 0 m

Z 12.5 m

Scale

X 1

Y 1

Z 1

Rotate

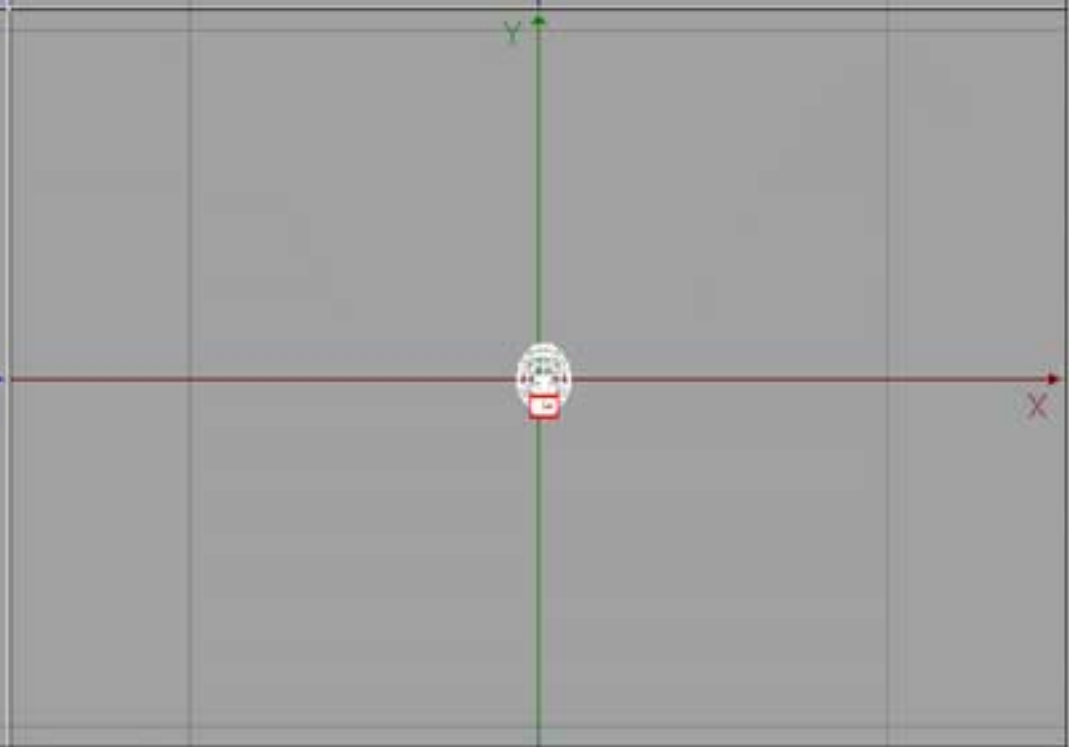
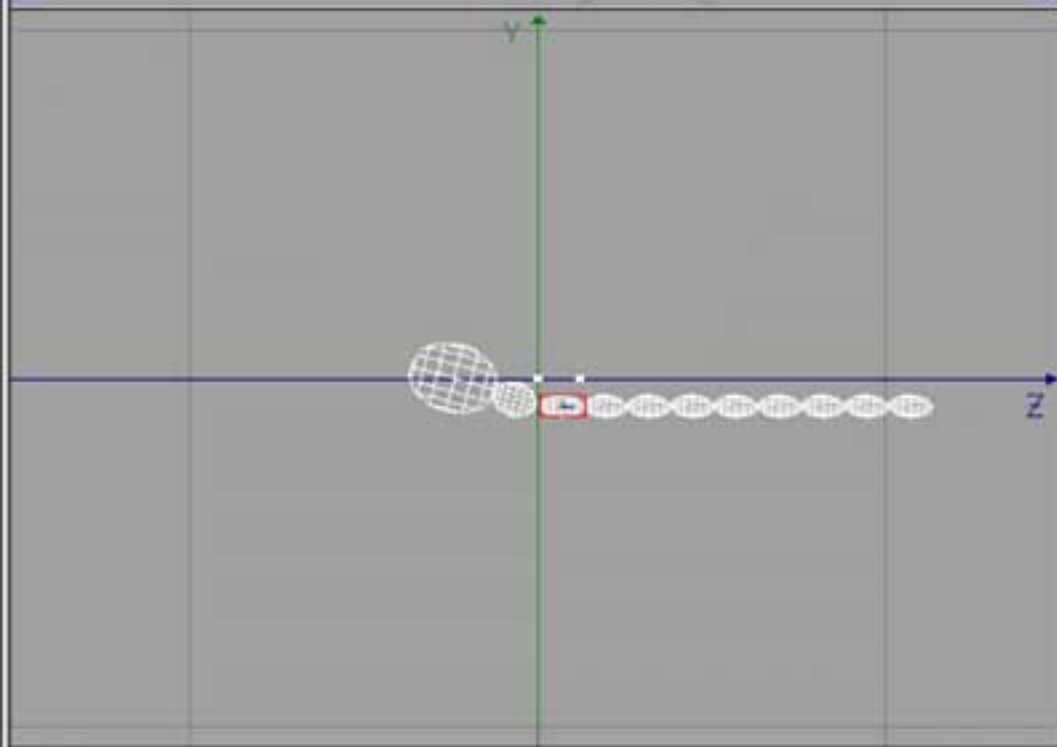
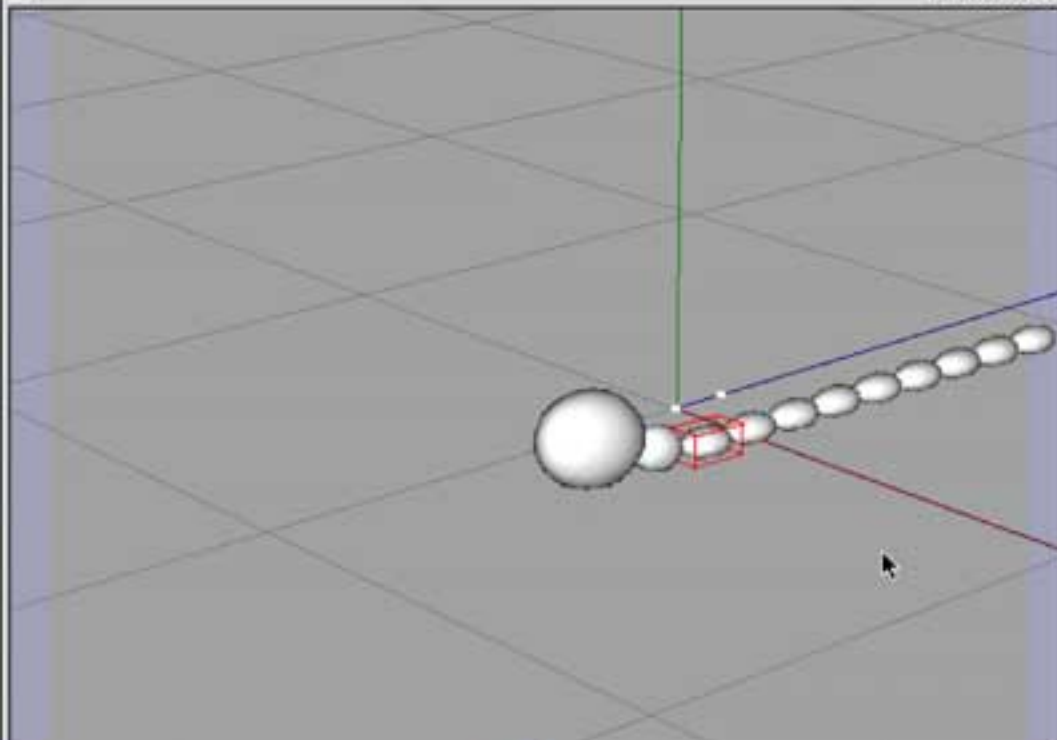
H 0°

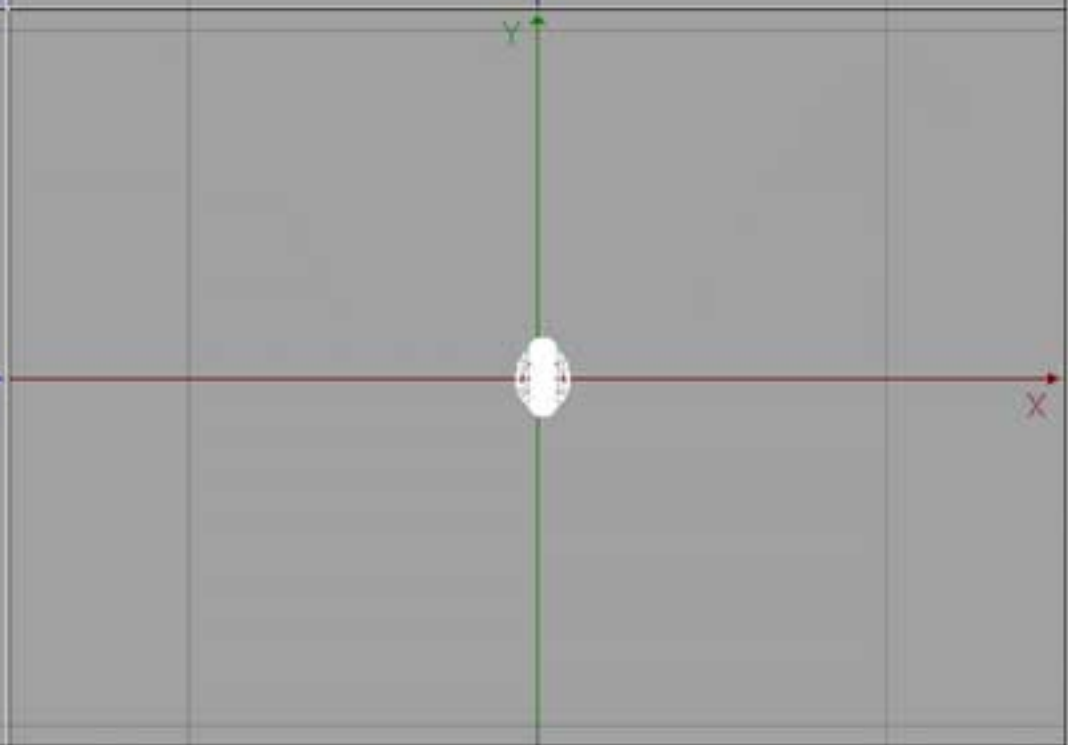
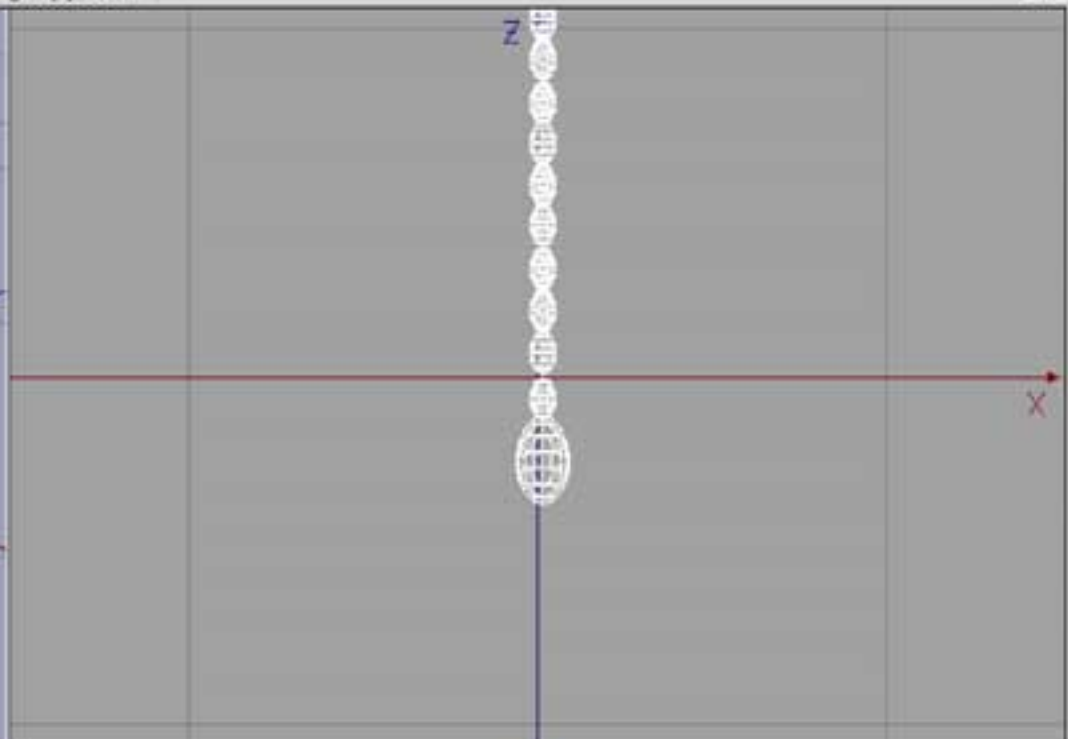
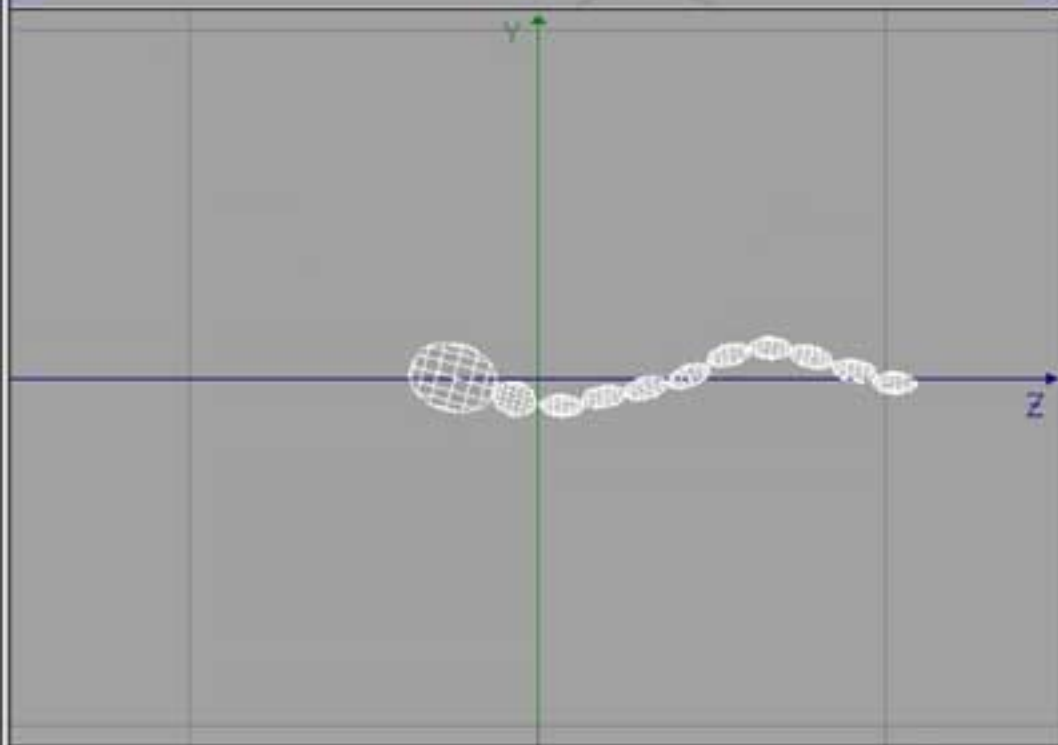
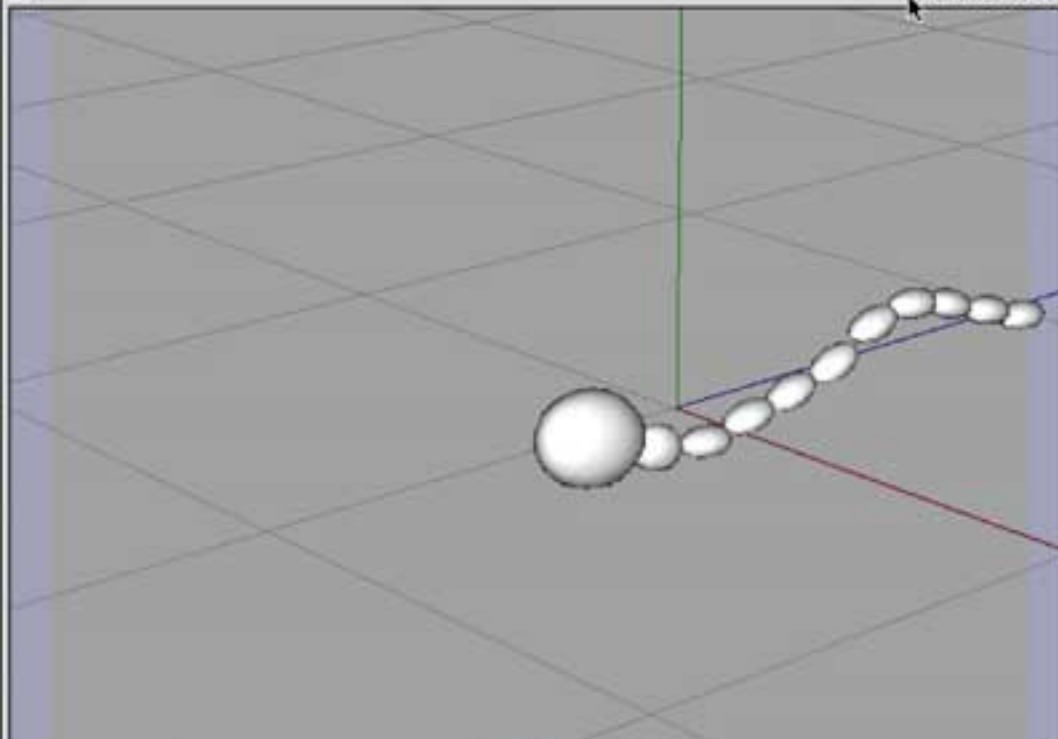
P 0°

B 0°

Cancel

OK





Objects

Empty Object...

2D-Object

3D-Object

Special Object

Empty Spline...

Splines

Spline Object

NURBS

Particle System

Scene Object

Bone Object...

FFD Object...

Name

Name

Tail

Cancel

OK

 Object Manager

Tail



Tail 1



Tail 1



Tail 1



Tail 1



Tail 1



Tail 1



Tail 1



Tail 1



Tail 1



Lower Thorax



Upper Thorax



 Object Manager

Tail 



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1



Lower Thorax



Upper Thorax



 Object Manager

▼ Tail



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1

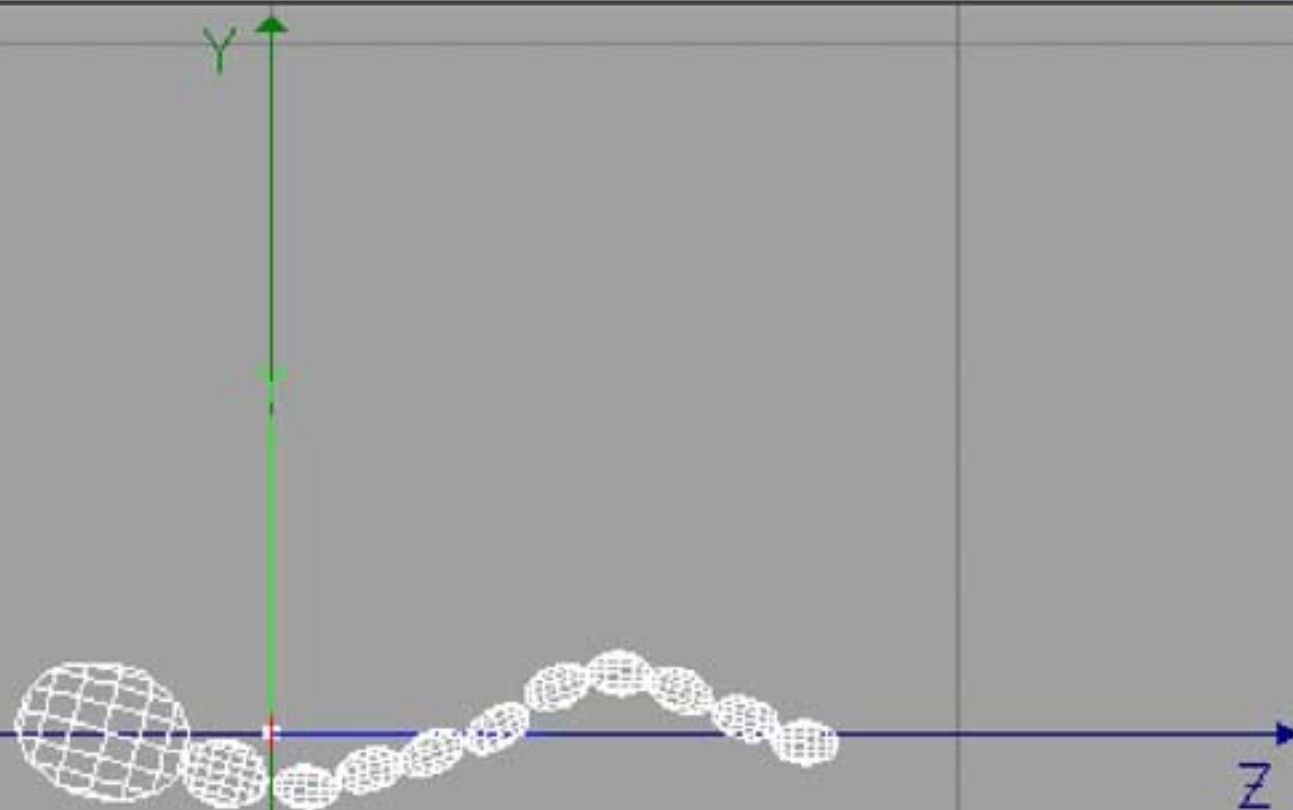


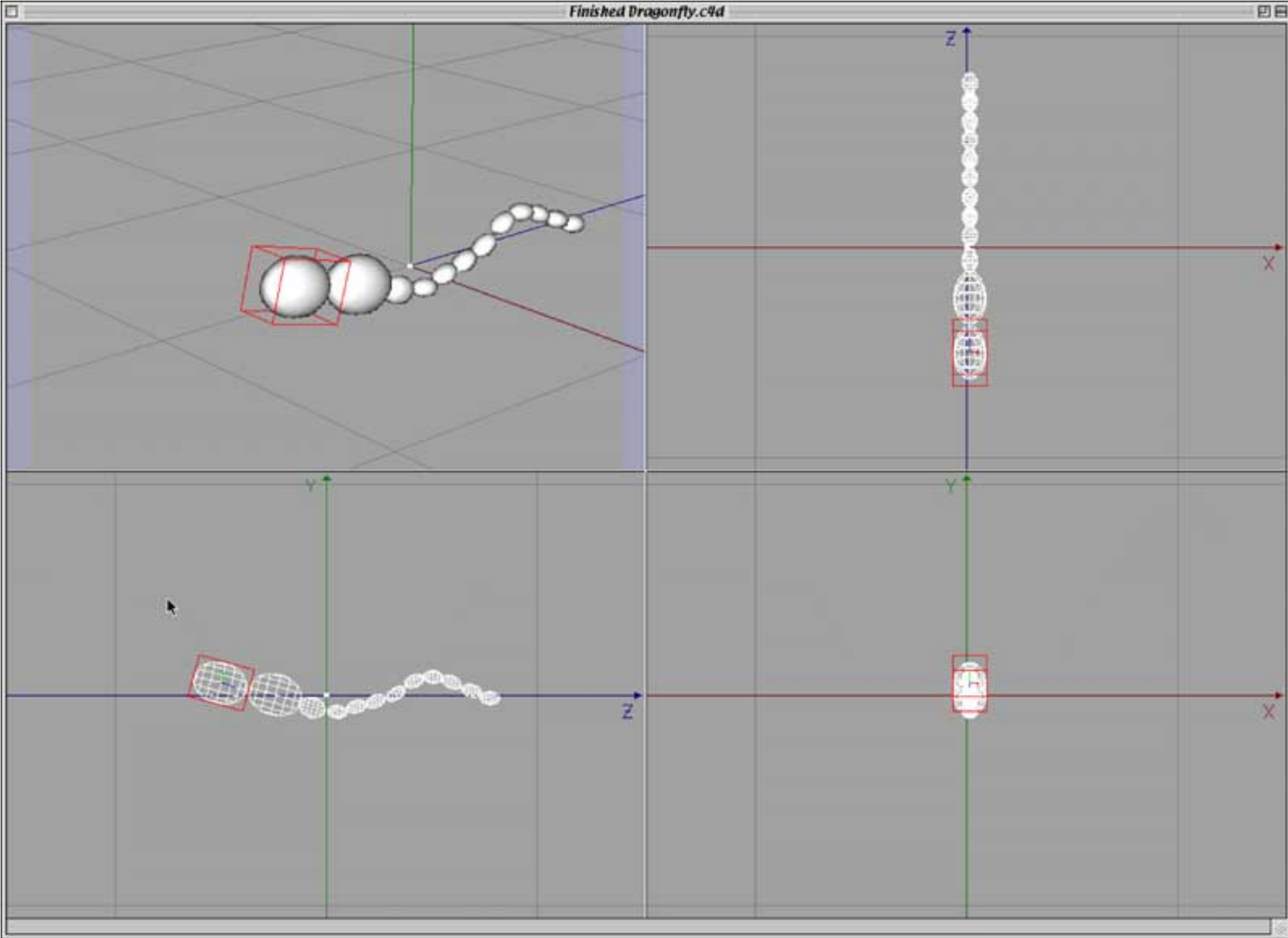
Lower Thorax

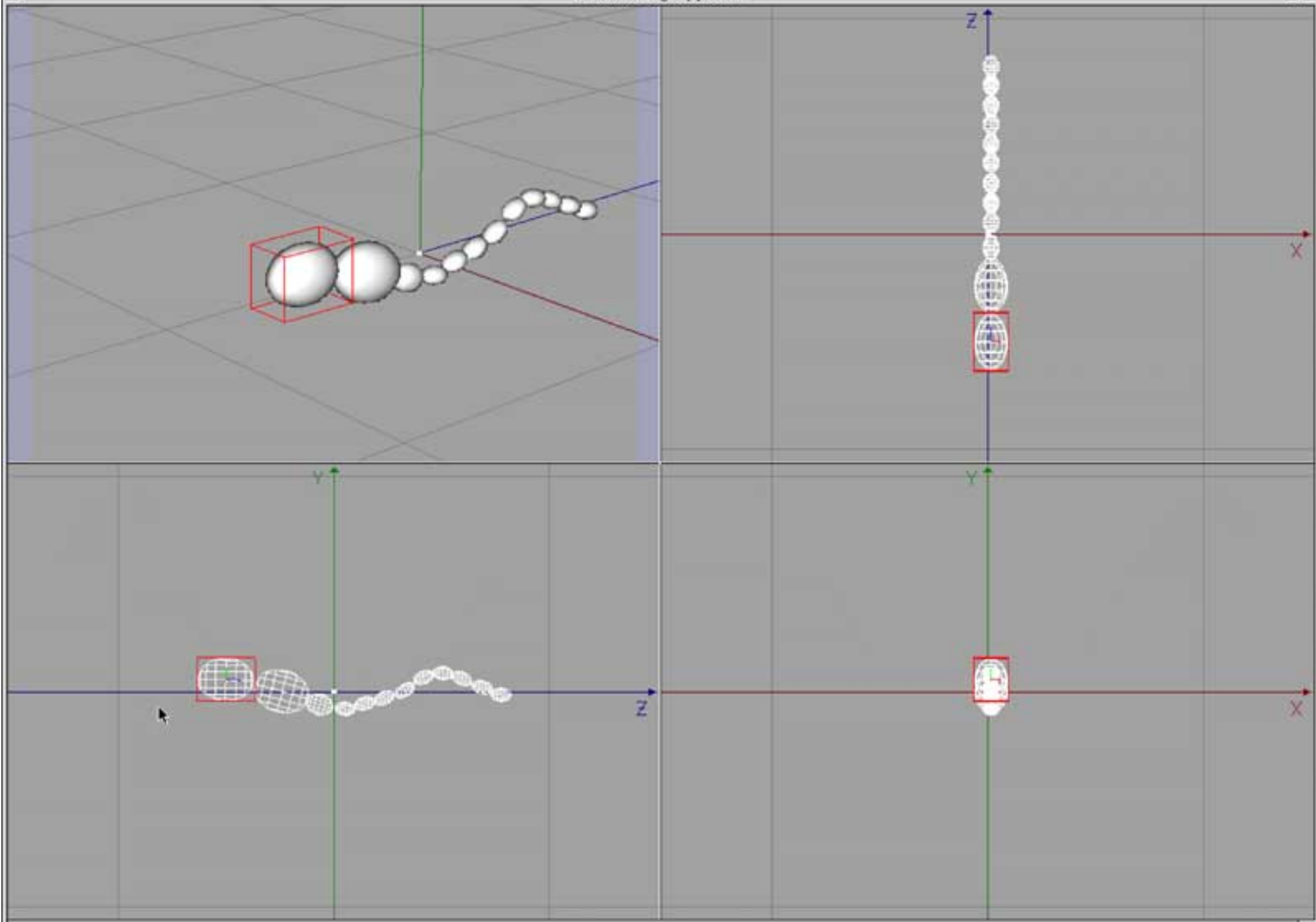


Upper Thorax











Coordinates Manager



Position

X

1.5 m

Y

5.501 m

Z

-50.006 m

Size

X

14.909 m

Y

19.453 m

Z

25.638 m

Direction

H

0 °

P

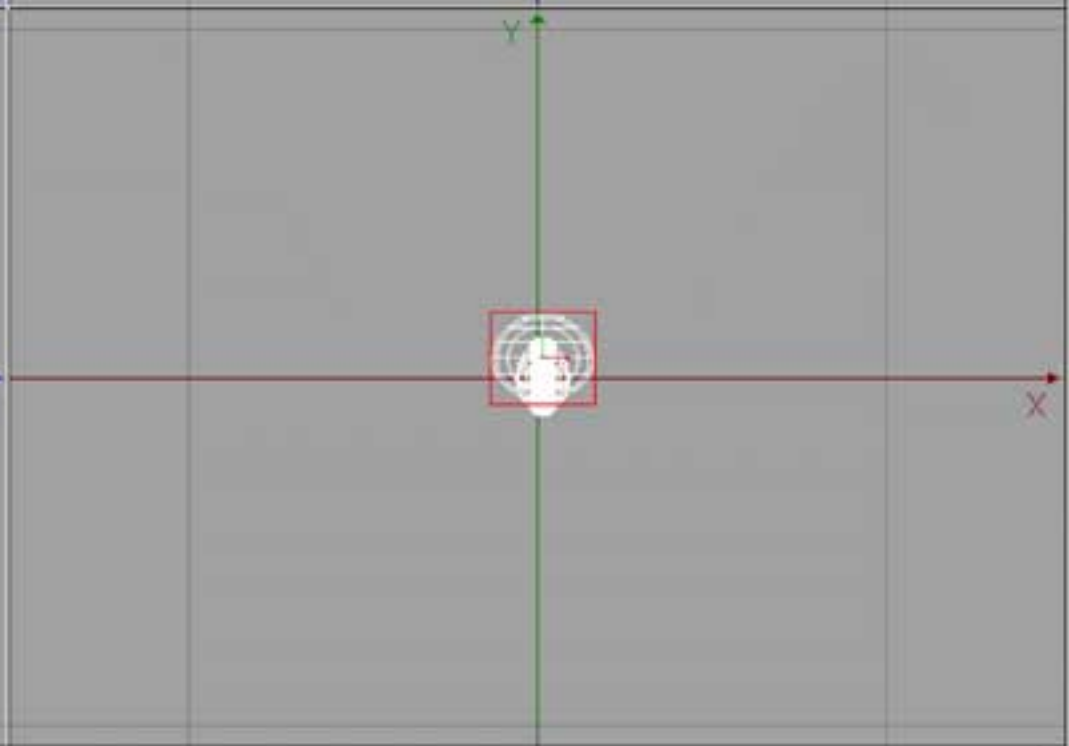
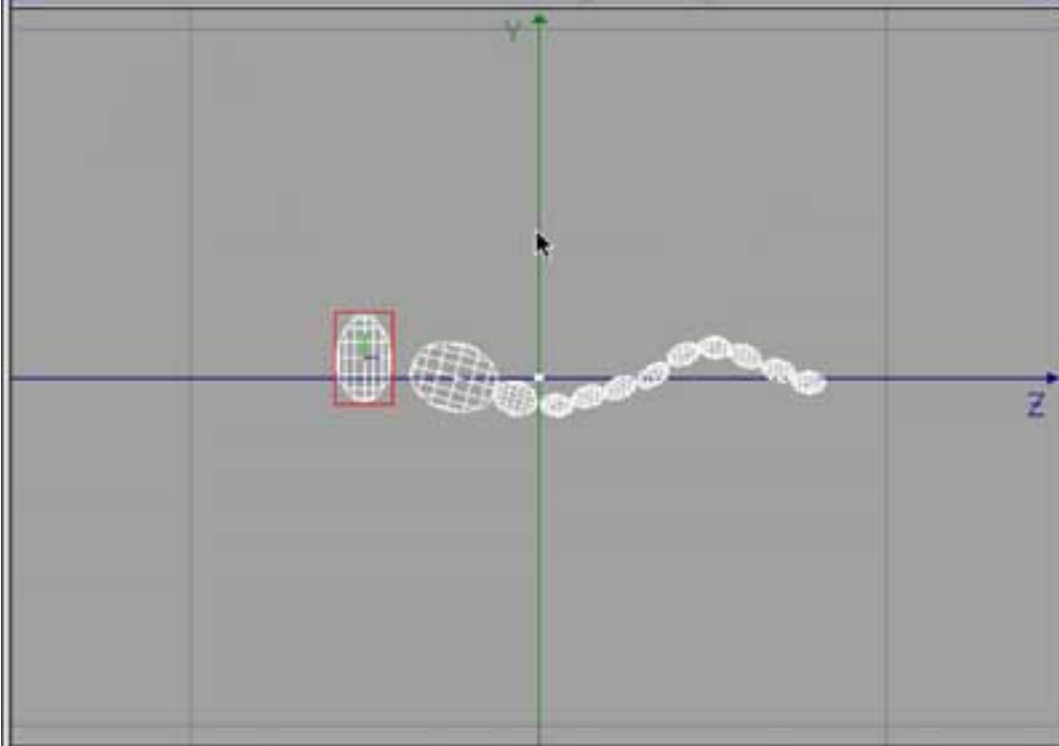
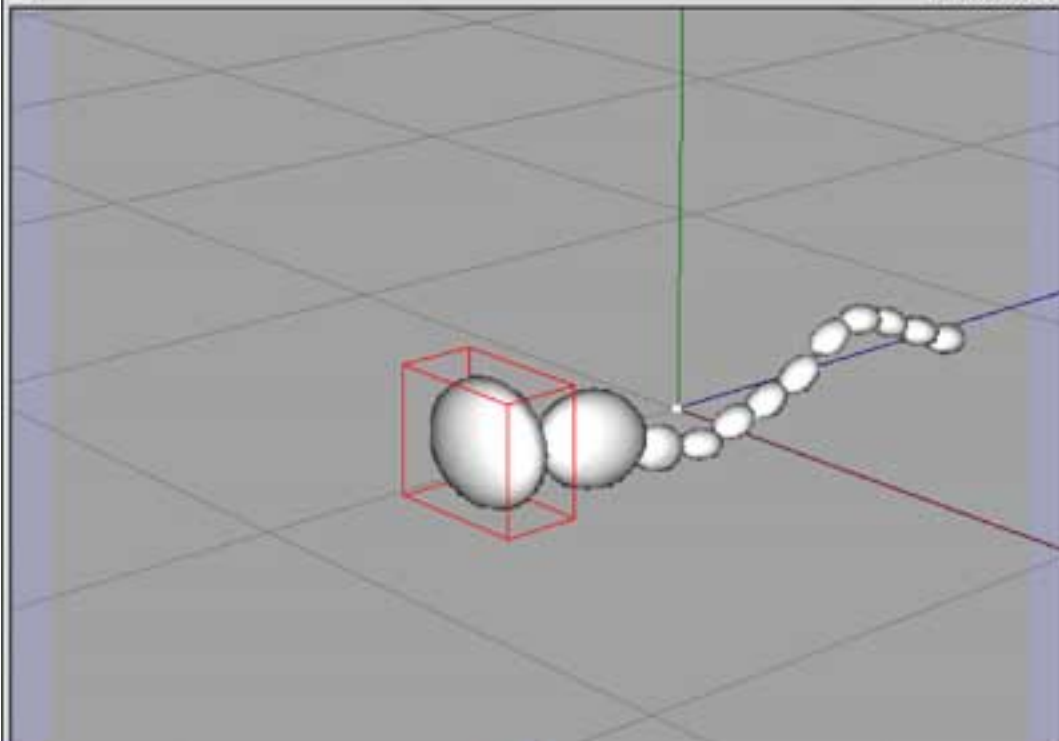
0 °

B

0 °

Object*Size*

Apply



Platonic Object ▶

Perfect Sphere...

Surface Sphere...

Cone...

Pyramid...

Cuboid...

Torus...

Cube 

Cylinder...

Cube

Name

Cube

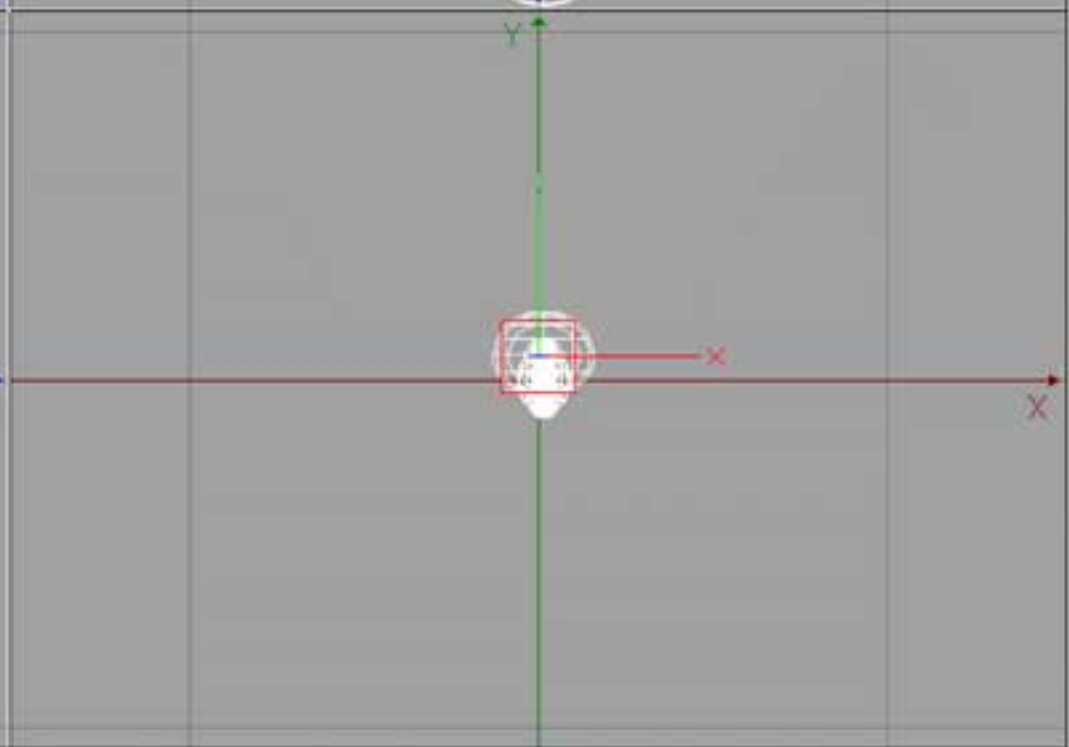
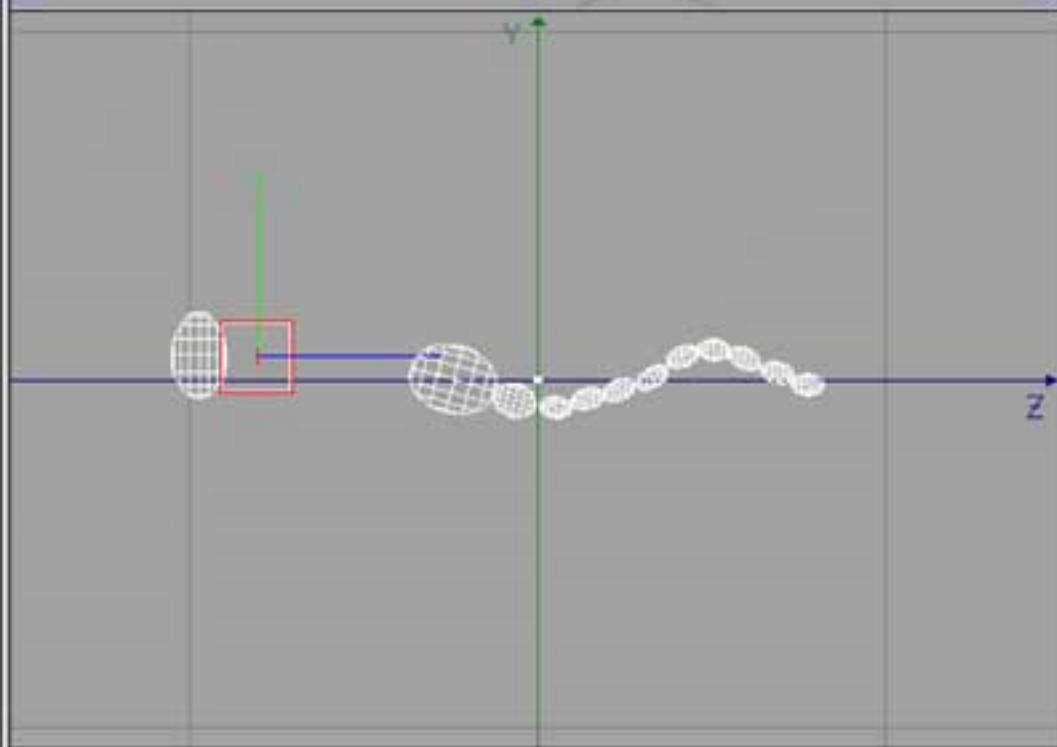
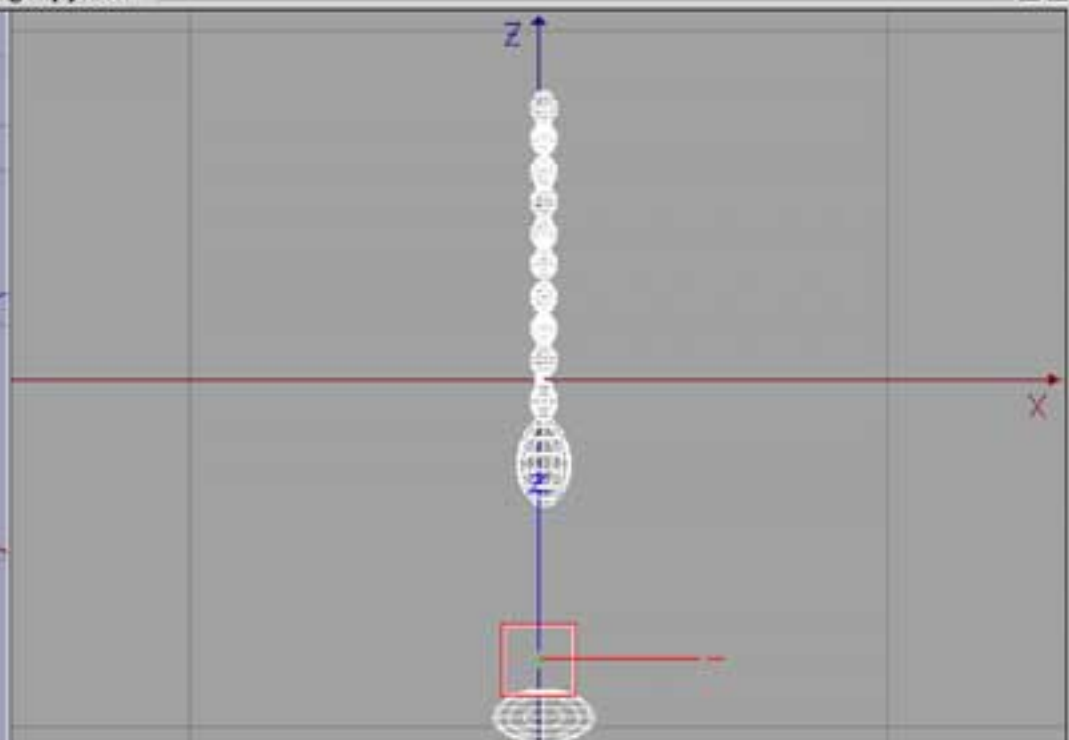
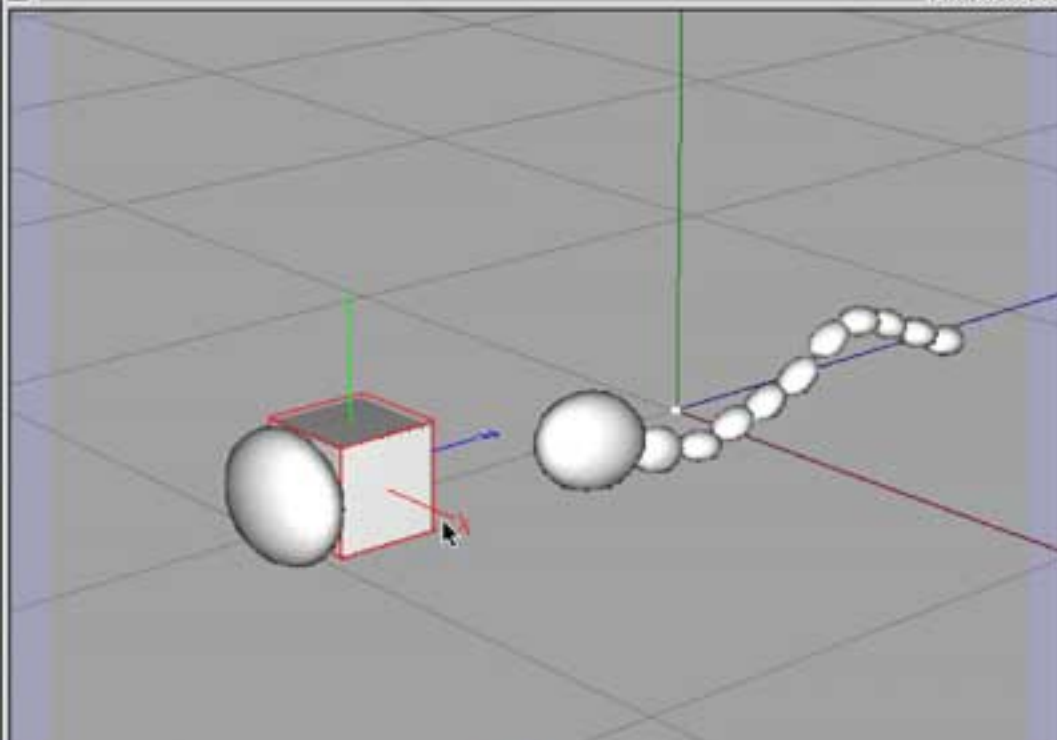
Edge Length

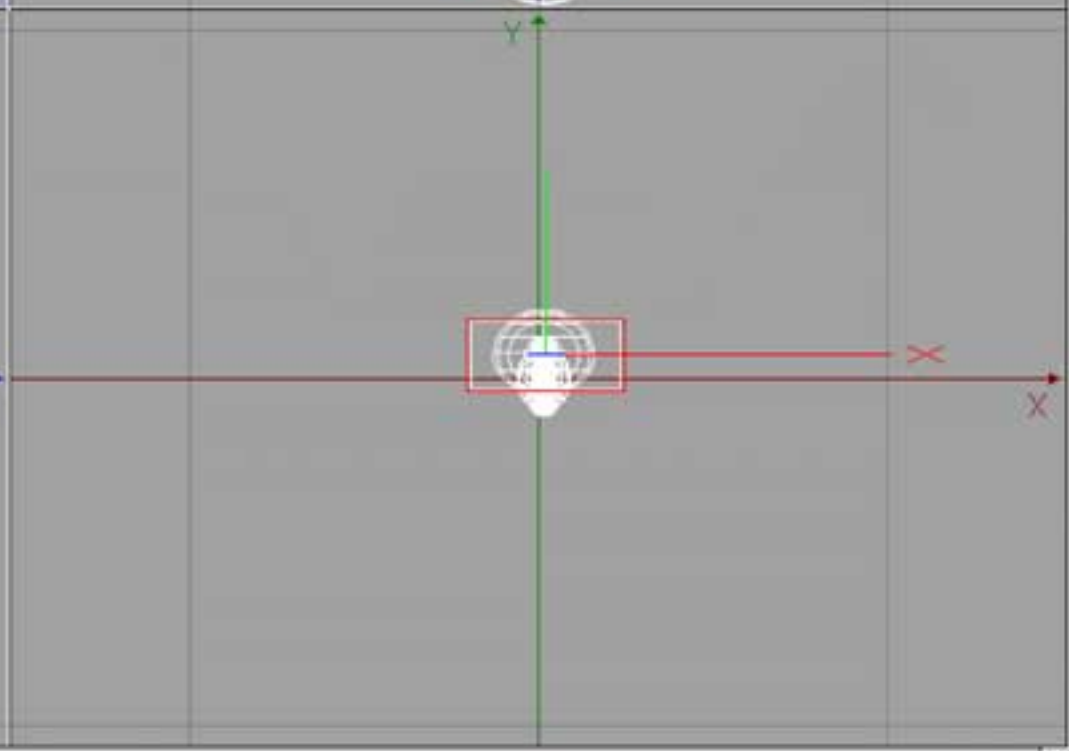
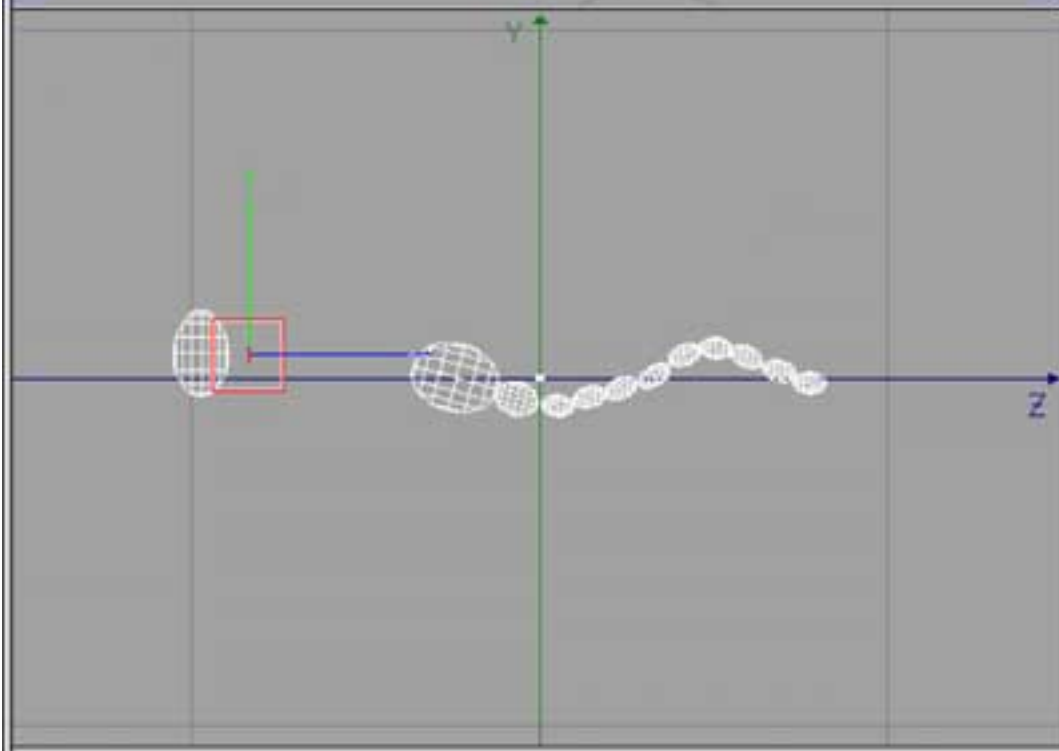
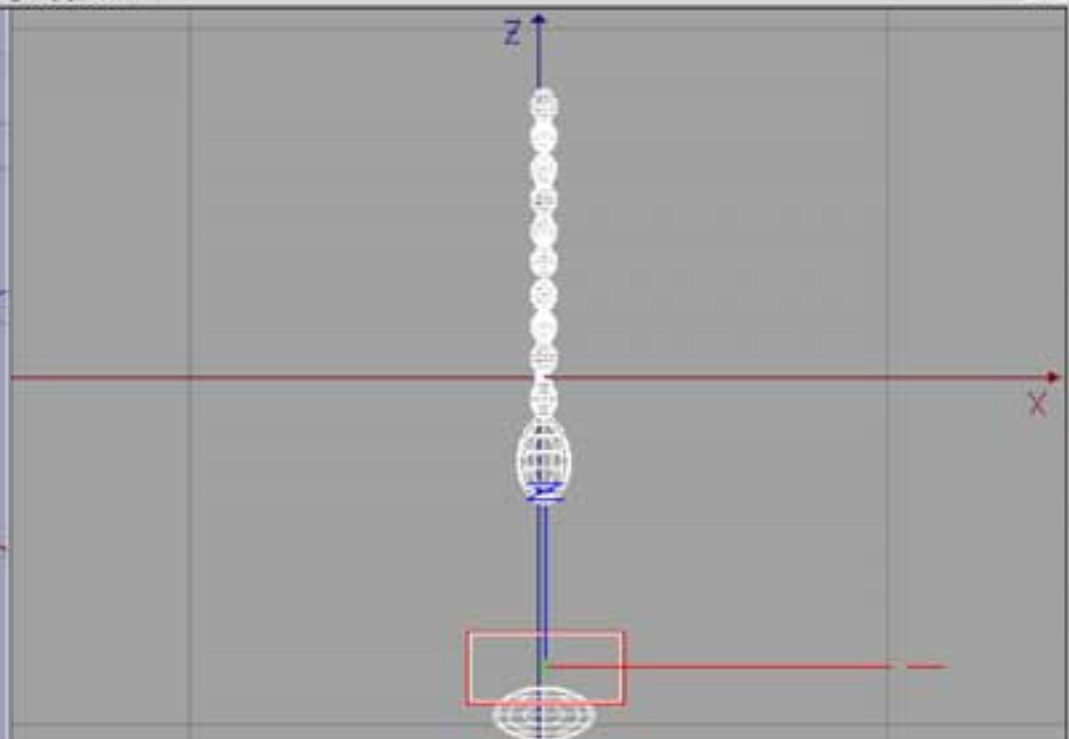
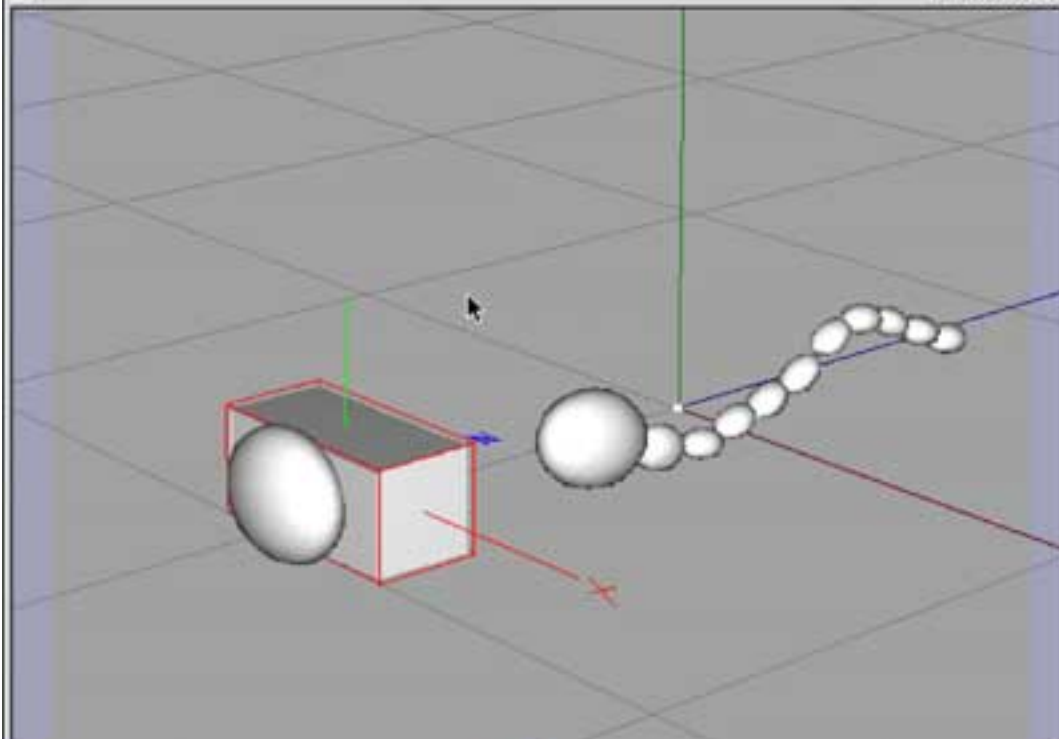
20 m

☐ *Separate Surfaces*

Cancel

OK





Tools

- Action ▶
- Coordinates ▶
- Options ▶
- Animation ▶
- Structure ▶
- Plug-ins ▶
- Arrange...
- Align To Object...
- Align To Point...
- Mirror...
- Transfer...
- Centre...
- Boolean...** 
- Duplicate...
- Crumple...
- Subdivide...
- Deform...
- Wrap...
- Randomise...
- Magnet Settings...

Boolean

Mode

A Minus B



*Search for
Object A:*

Ey

Eye Balls



*Search for
Object B:*

Cancel

OK

Boolean

Mode

A Minus B



*Search for
Object A:*

Ey

Eye Balls

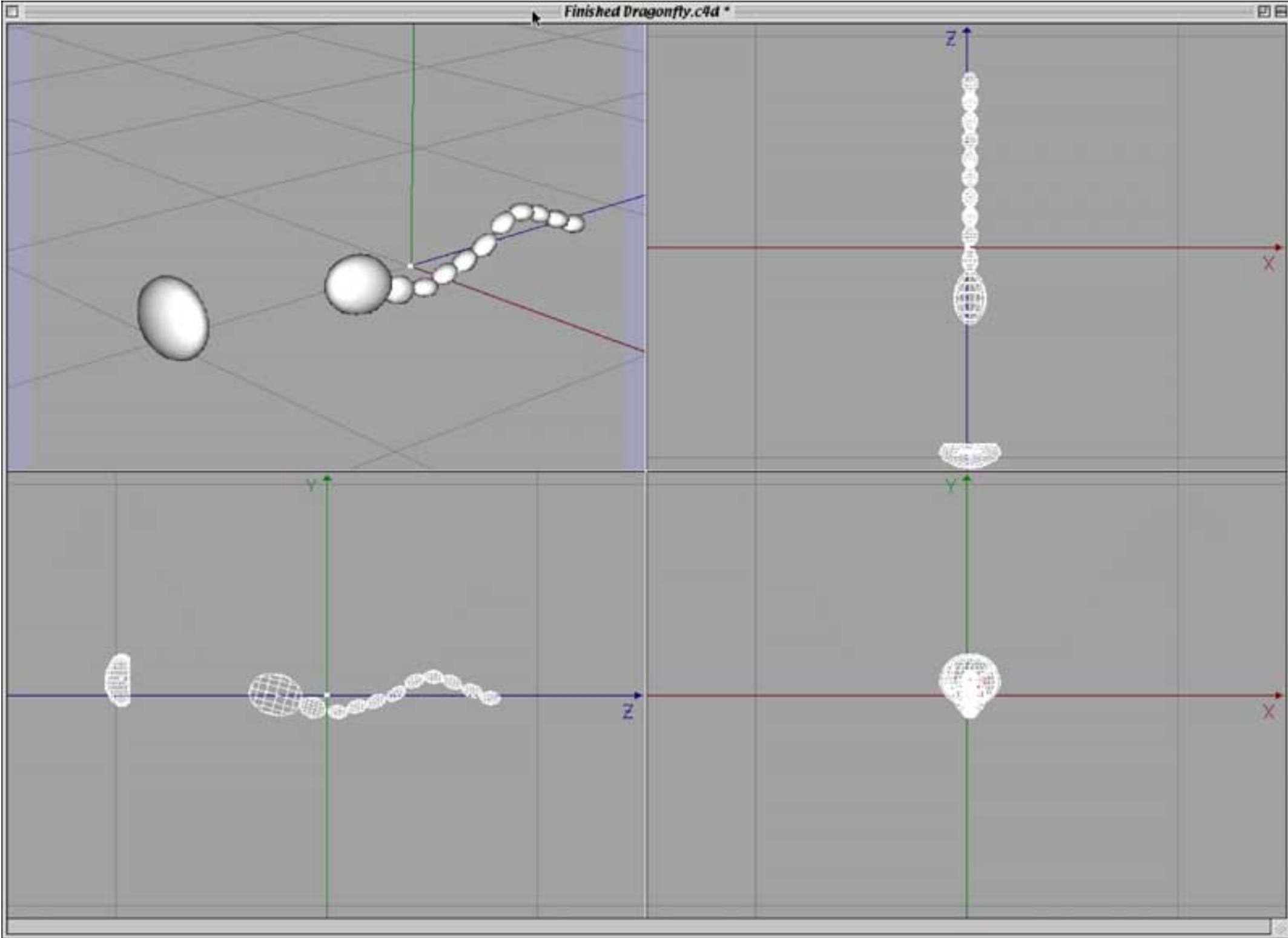
*Search for
Object B:*

cu

Cube

Cancel

OK



Object Manager

▶ Eye Balls-Cute

Cube

Eye Balls

▼ Tail

Tail1

Tail1

Tail1

Tail1

Tail1

Tail1

Tail1

Tail1

Tail1

Lower Thorax

Upper Thorax



Object Manager

▶ Eye Balls-Cube



Cube



Eye Balls



▼ Tail



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1



Tail1



Lower Thorax



Upper Thorax



Display

☒ *Hide In Editor*

☒ *Hide When Raytraced*

Display

Wireframe



Cancel

OK

Object Manager

Load Object... ⌘O

Save Object As... ⌘S

✓ Display Attribute Icons

Close ⌘W

File ▶

Edit ▶

Function ▶

▼ Tail



Tail 1



Tail 1



Tail 1



Tail 1



Tail 1



Tail 1



Tail 1



Tail 1



Tail 1

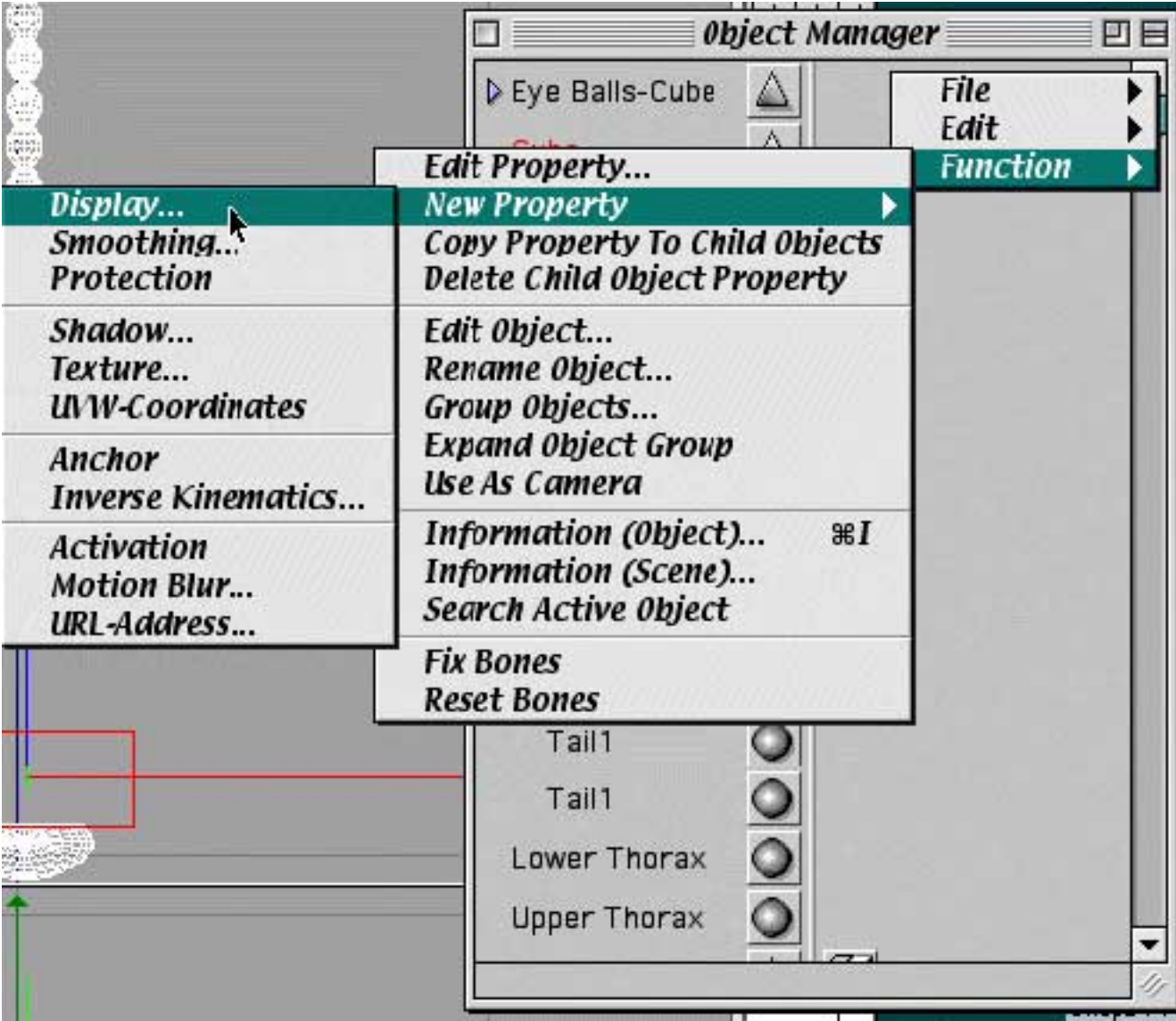


Lower Thorax



Upper Thorax





Display

☐ *Hide In Editor*

☐ *Hide When Raytraced*

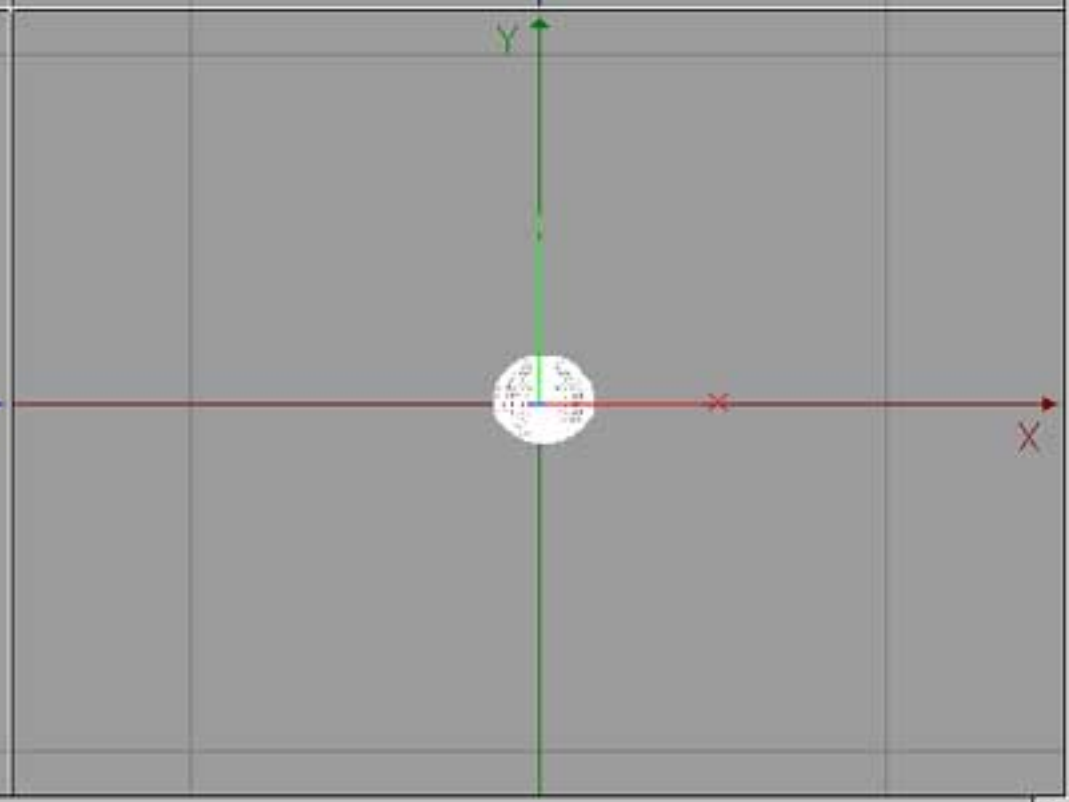
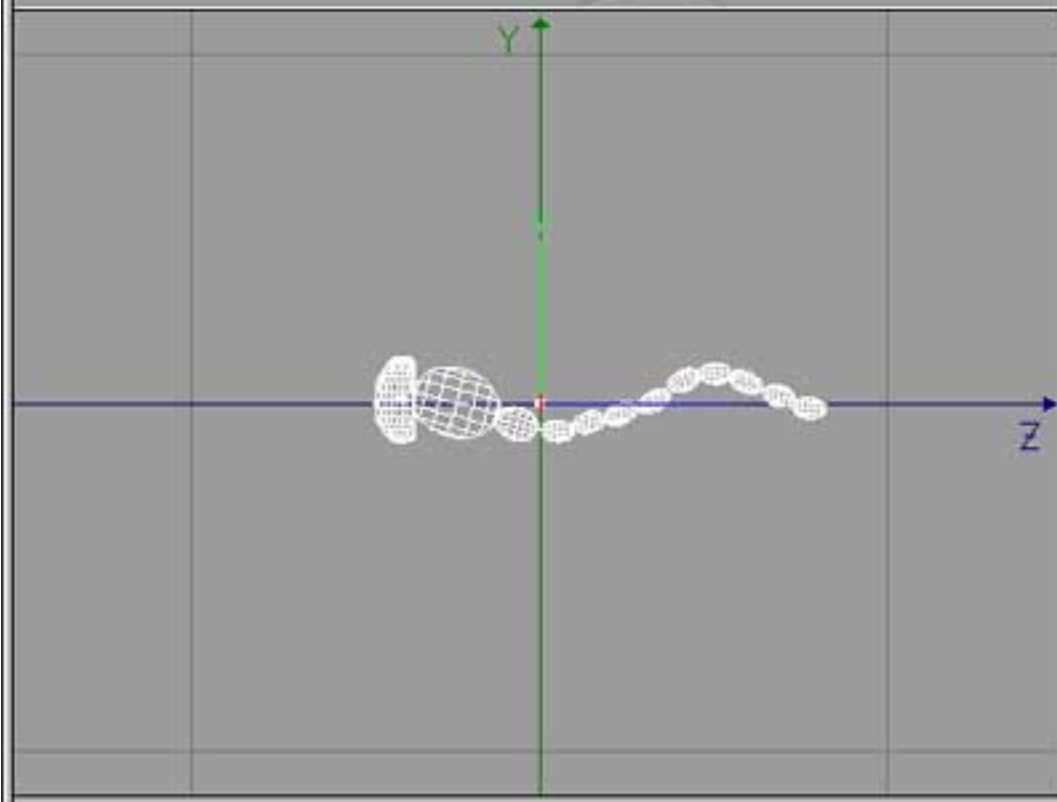
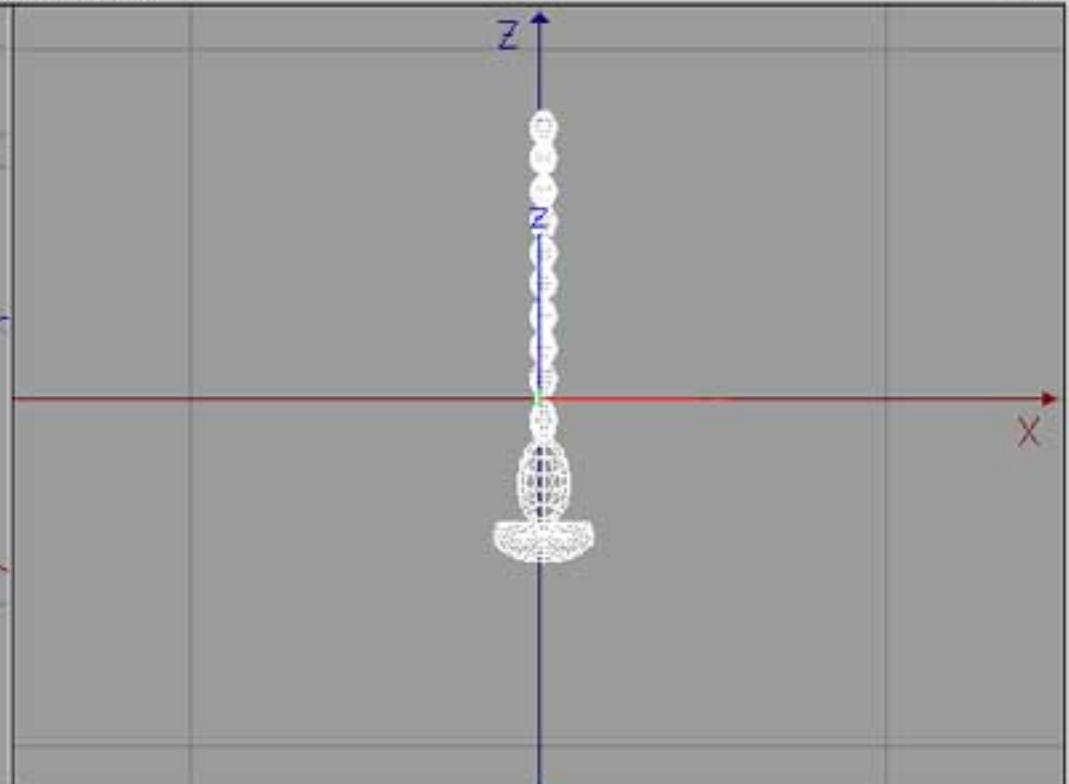
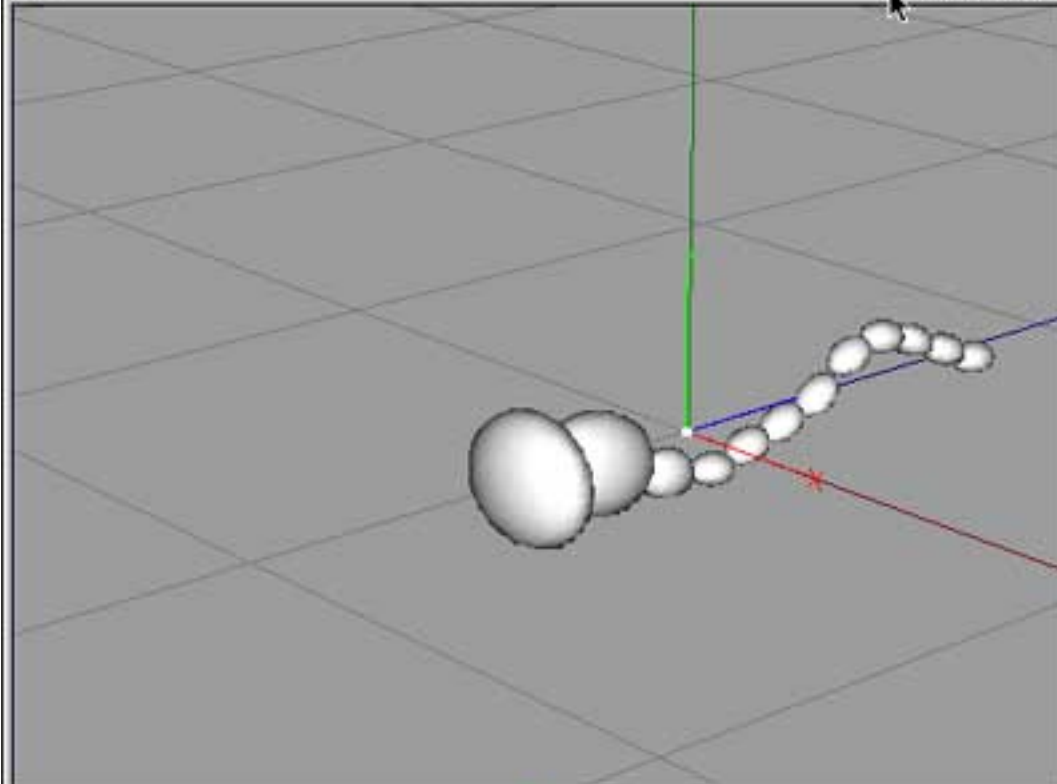
Display

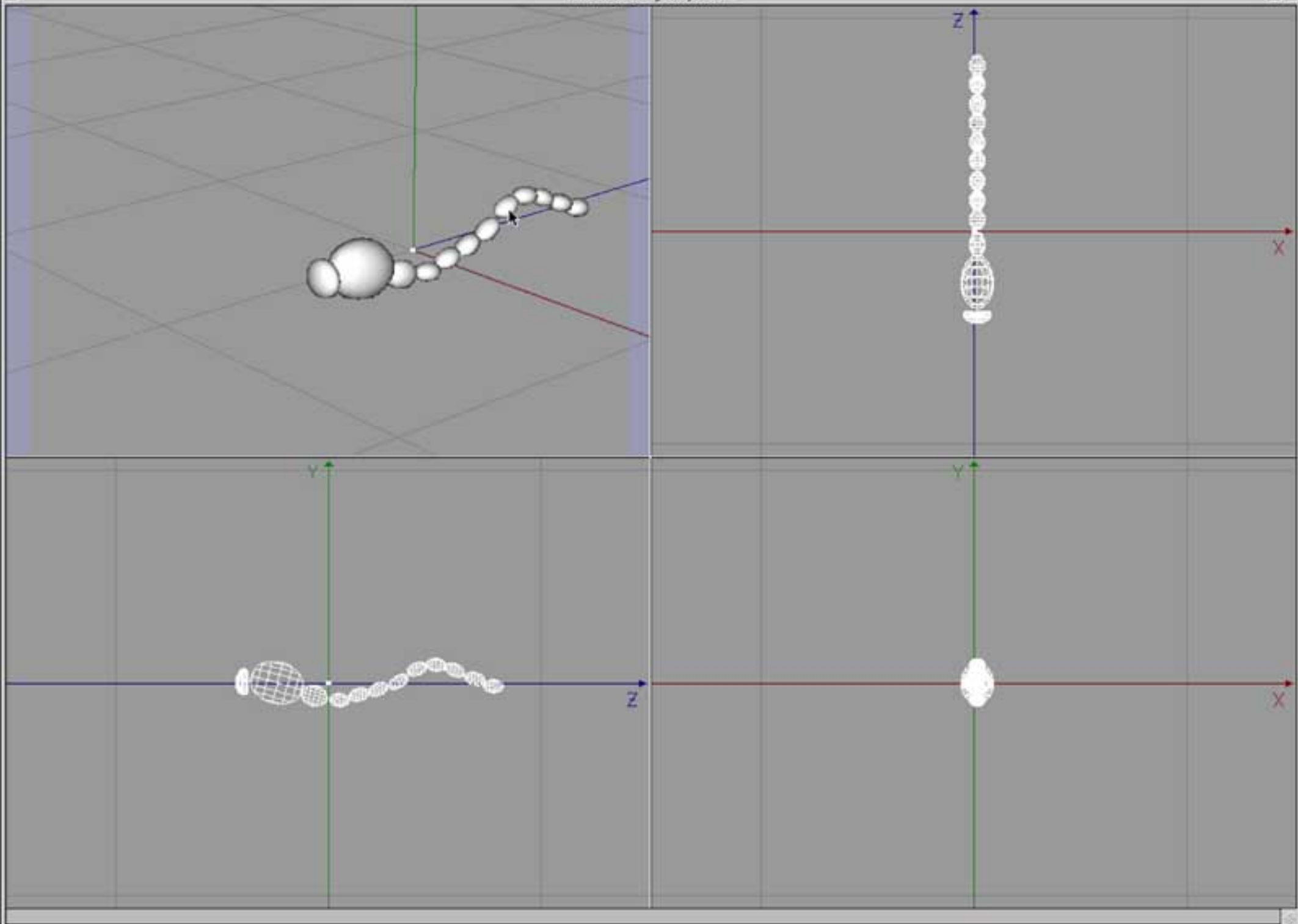
Wireframe

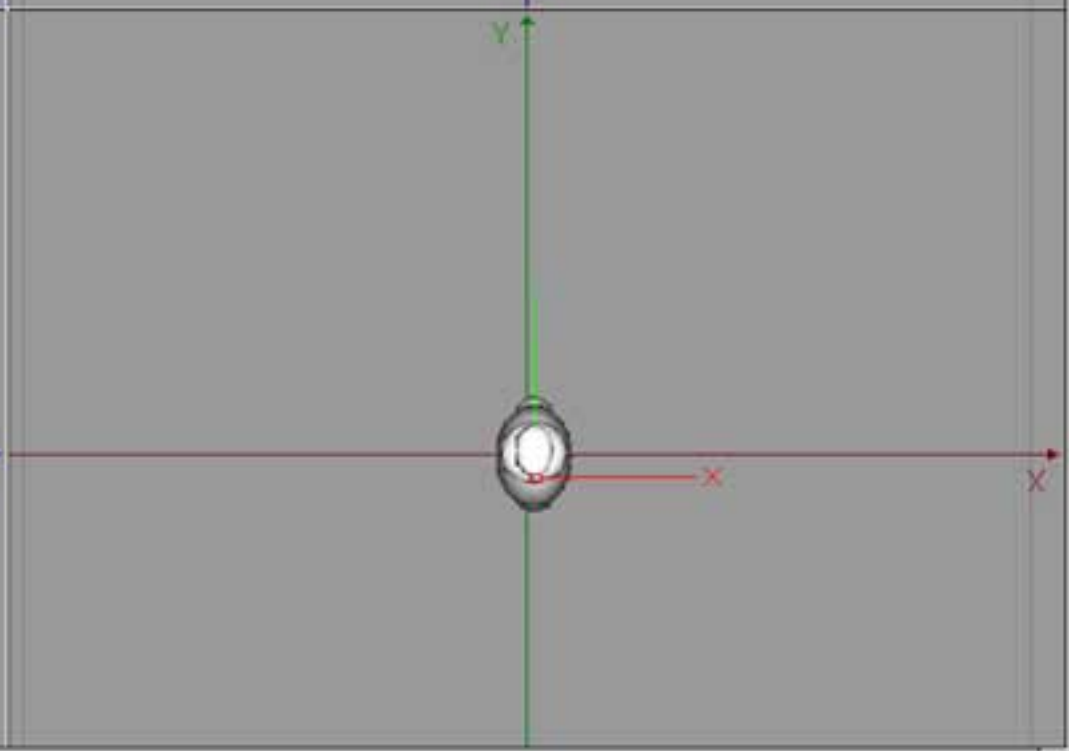
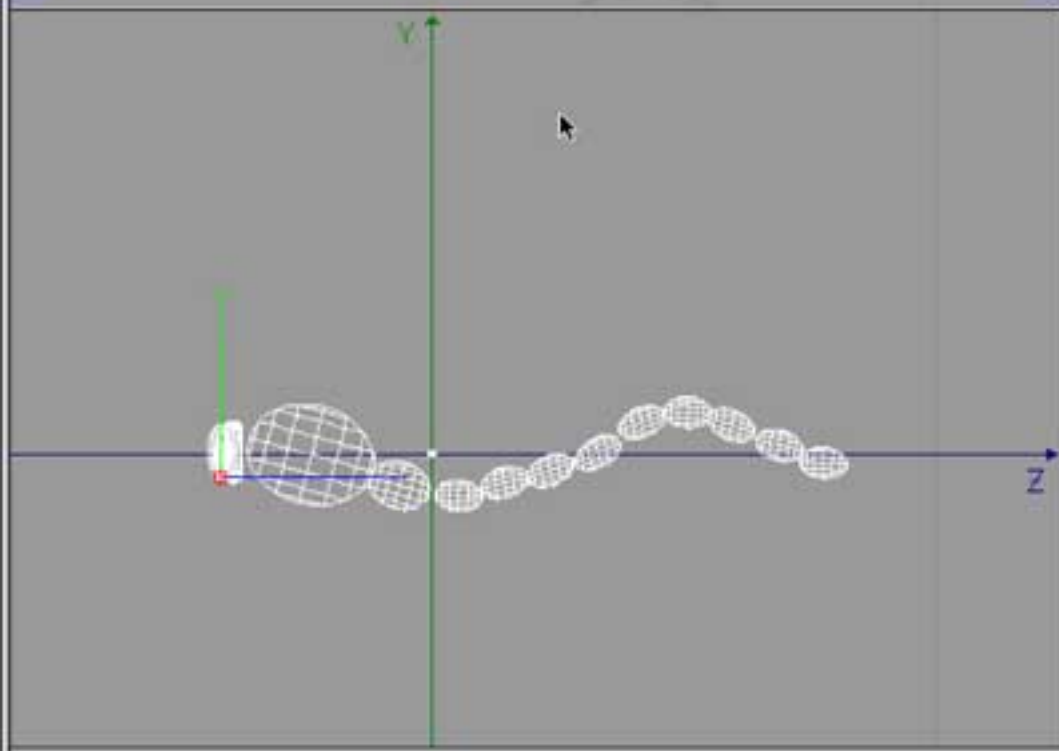
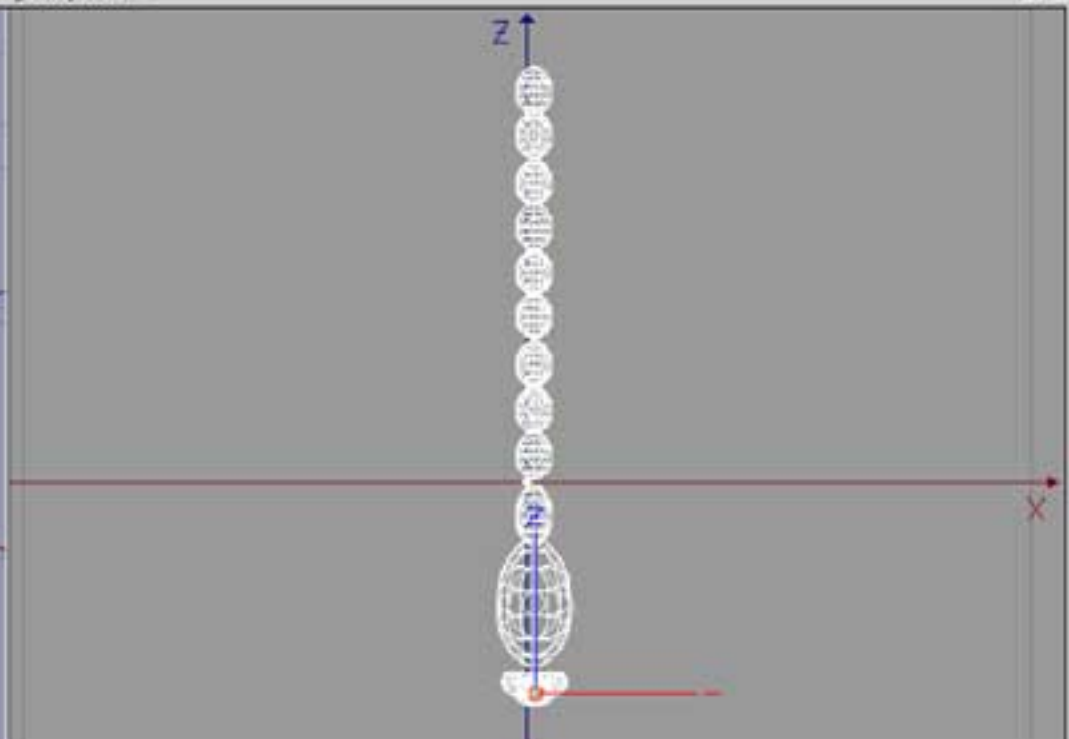
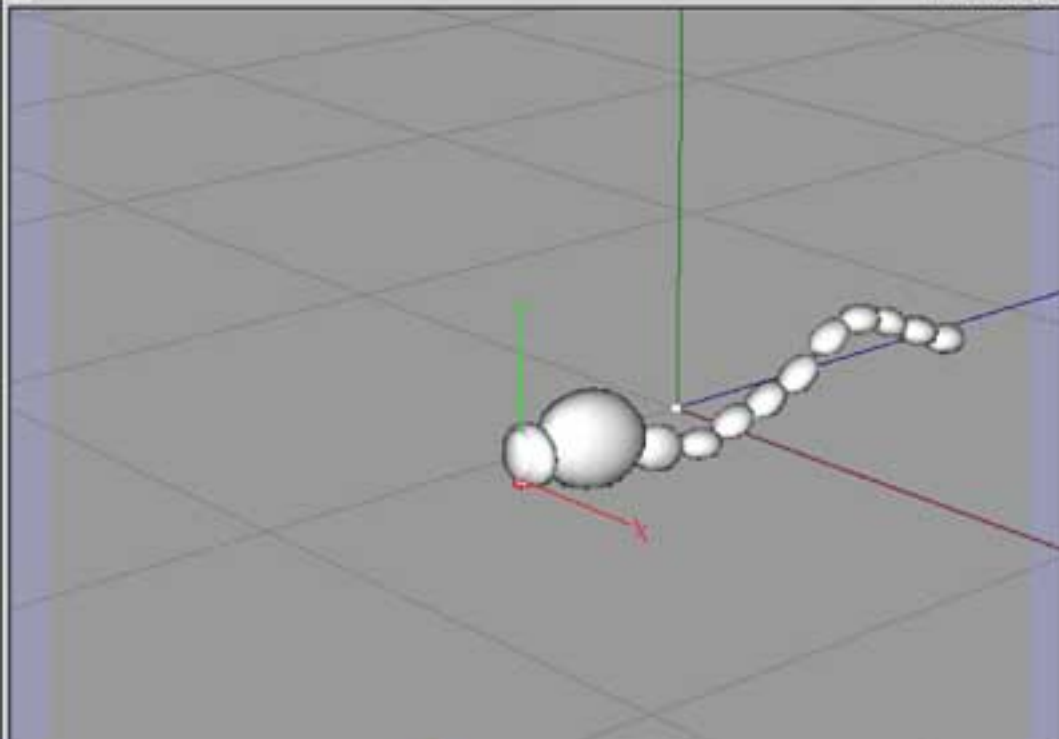


Cancel

OK







Object Manager

Mouth

Nose

▶ Eyes

▶ Tail

Lower Thorax

Upper Thorax





View



Active Object

Scene Without Camera/Light
Scene
Standard

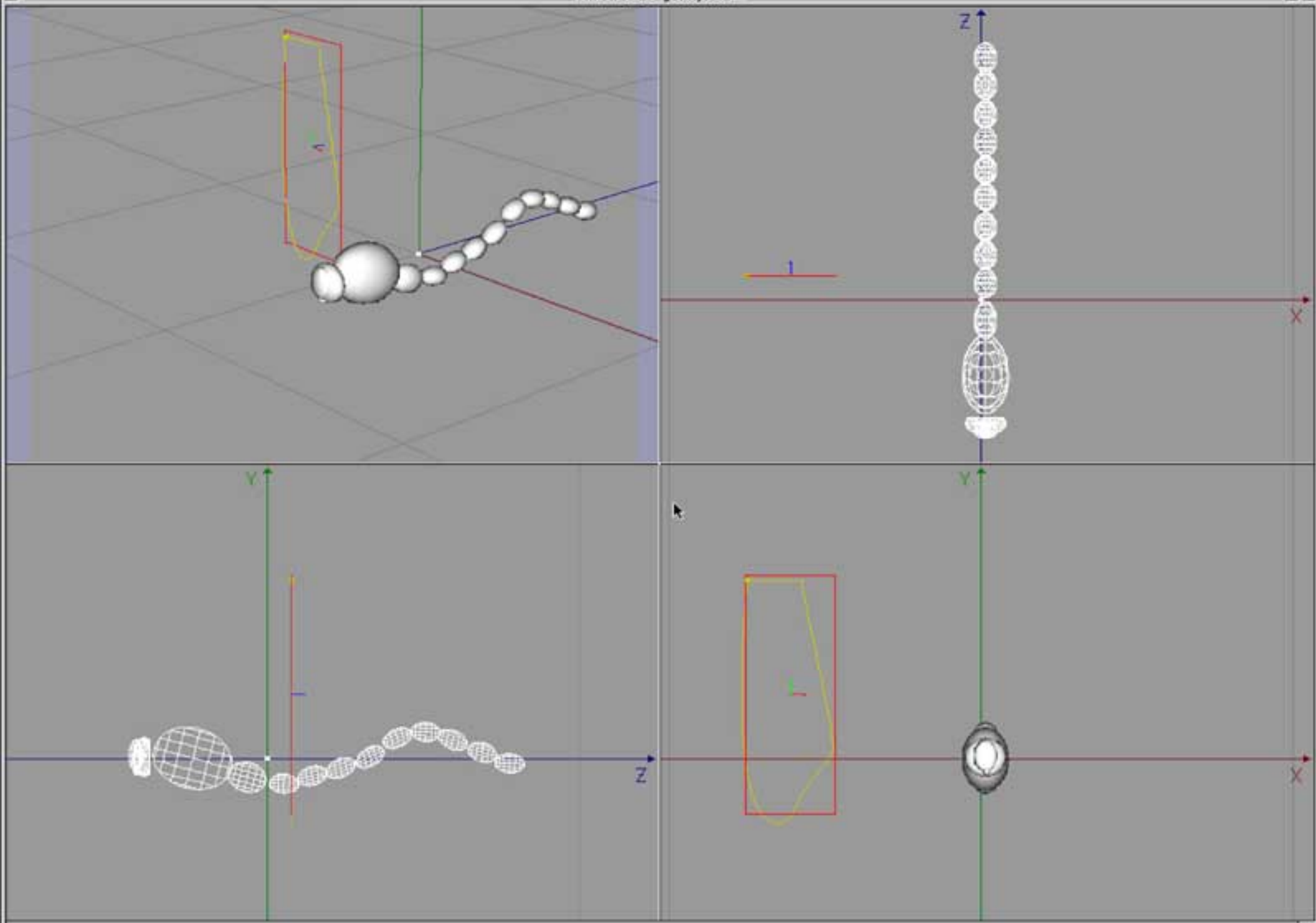


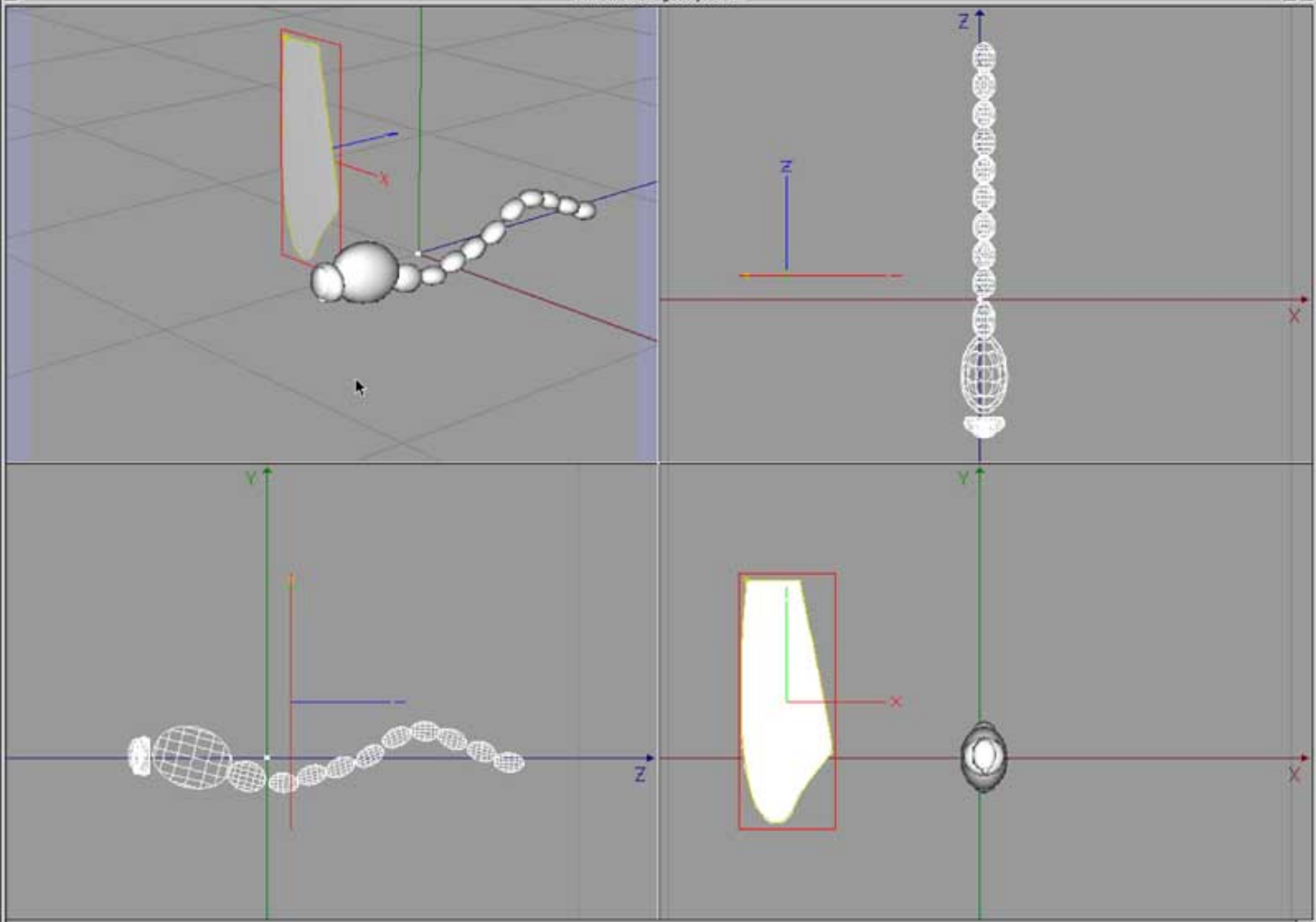


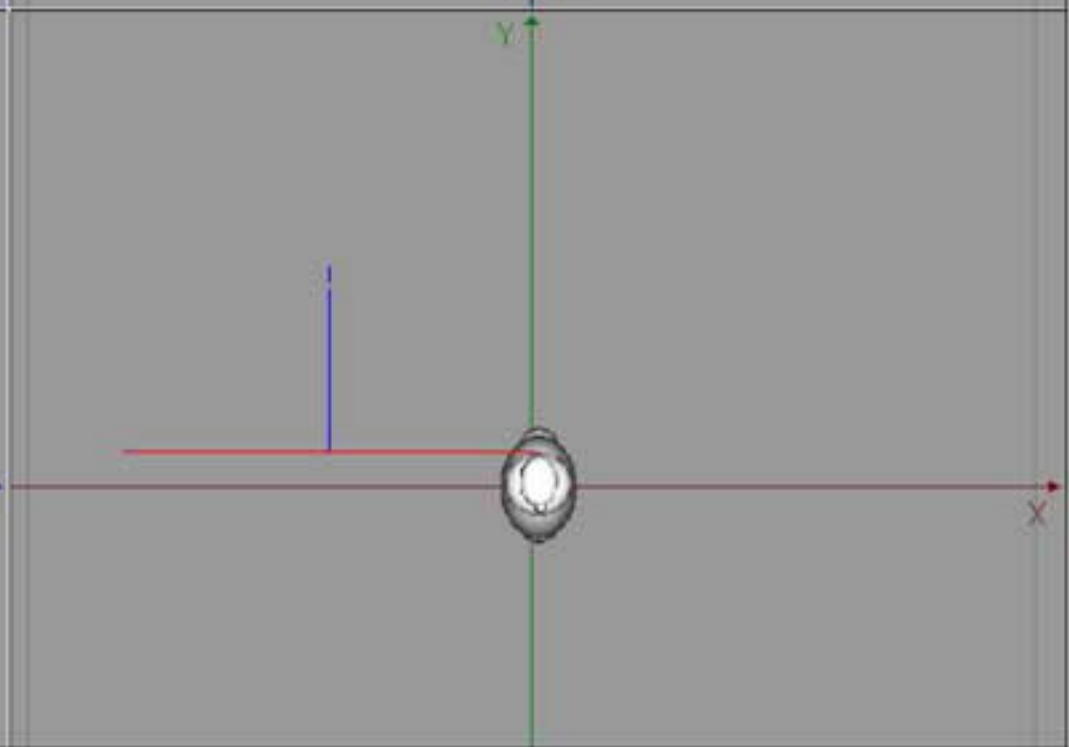
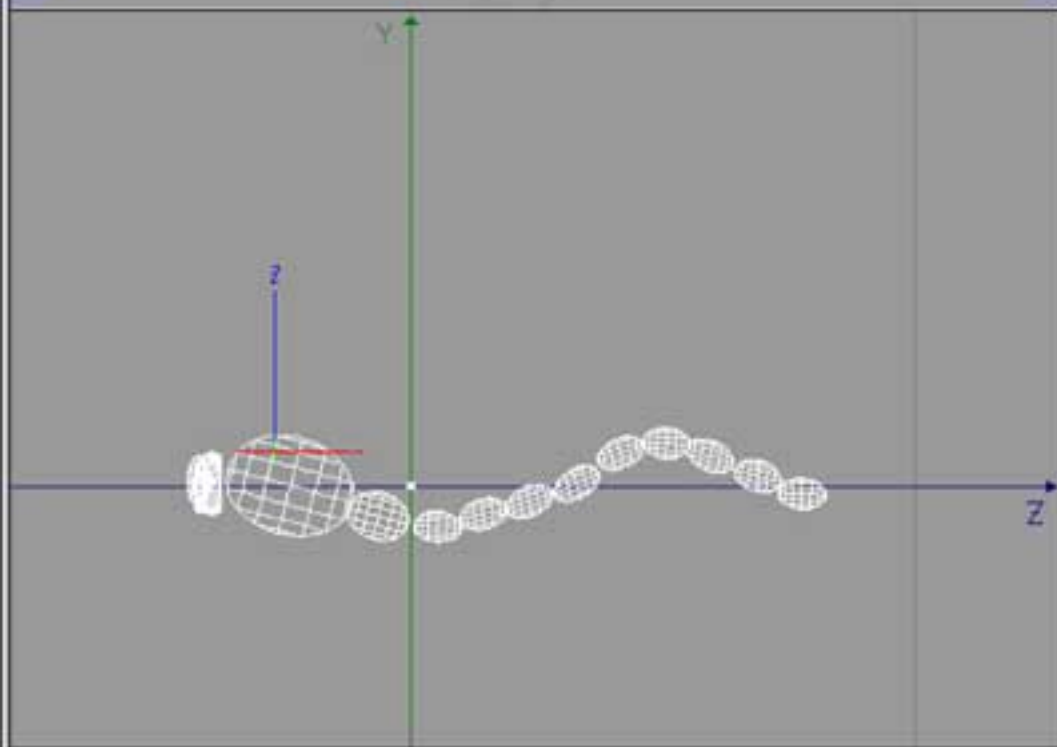
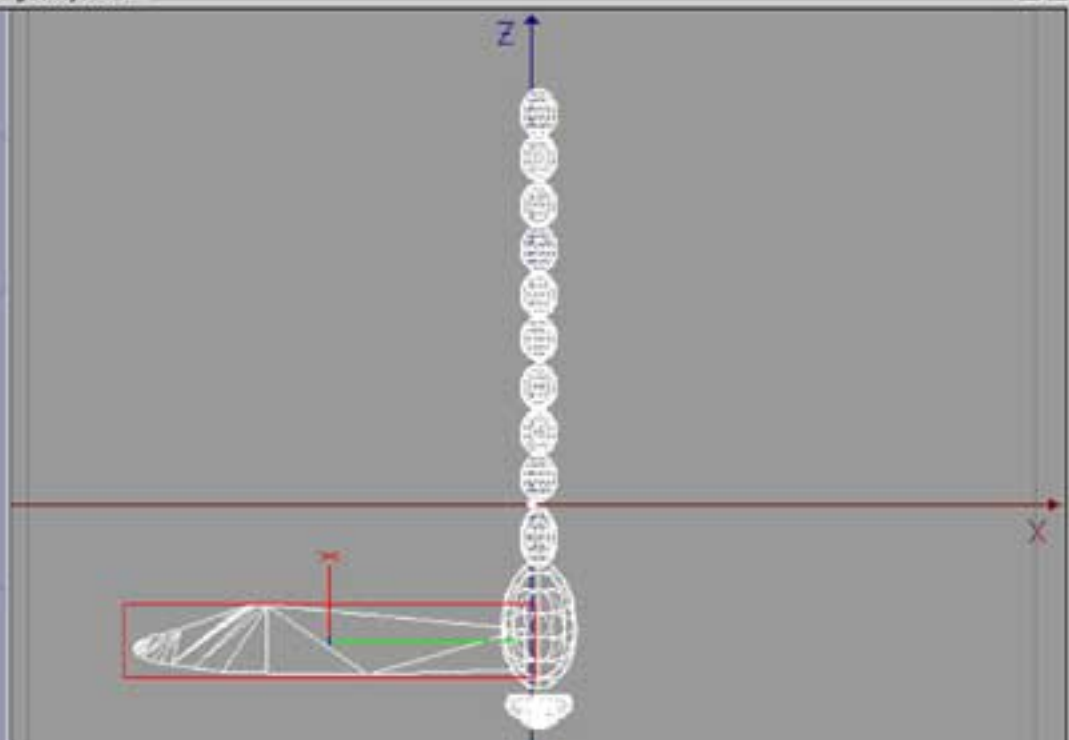
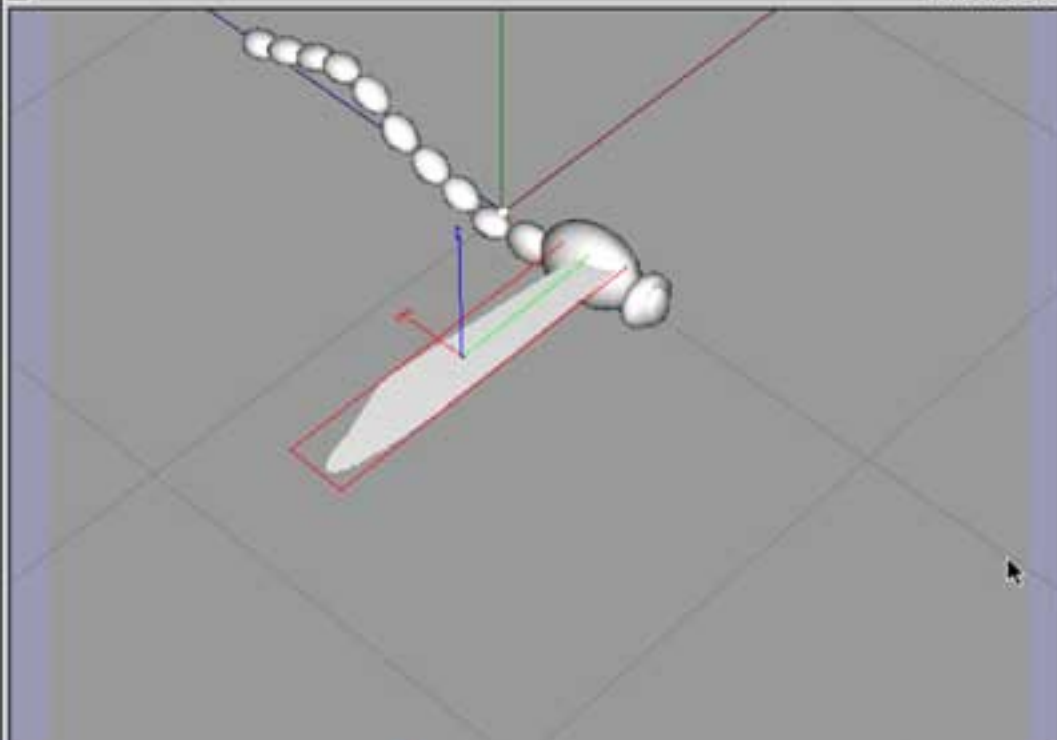
Camera Tool

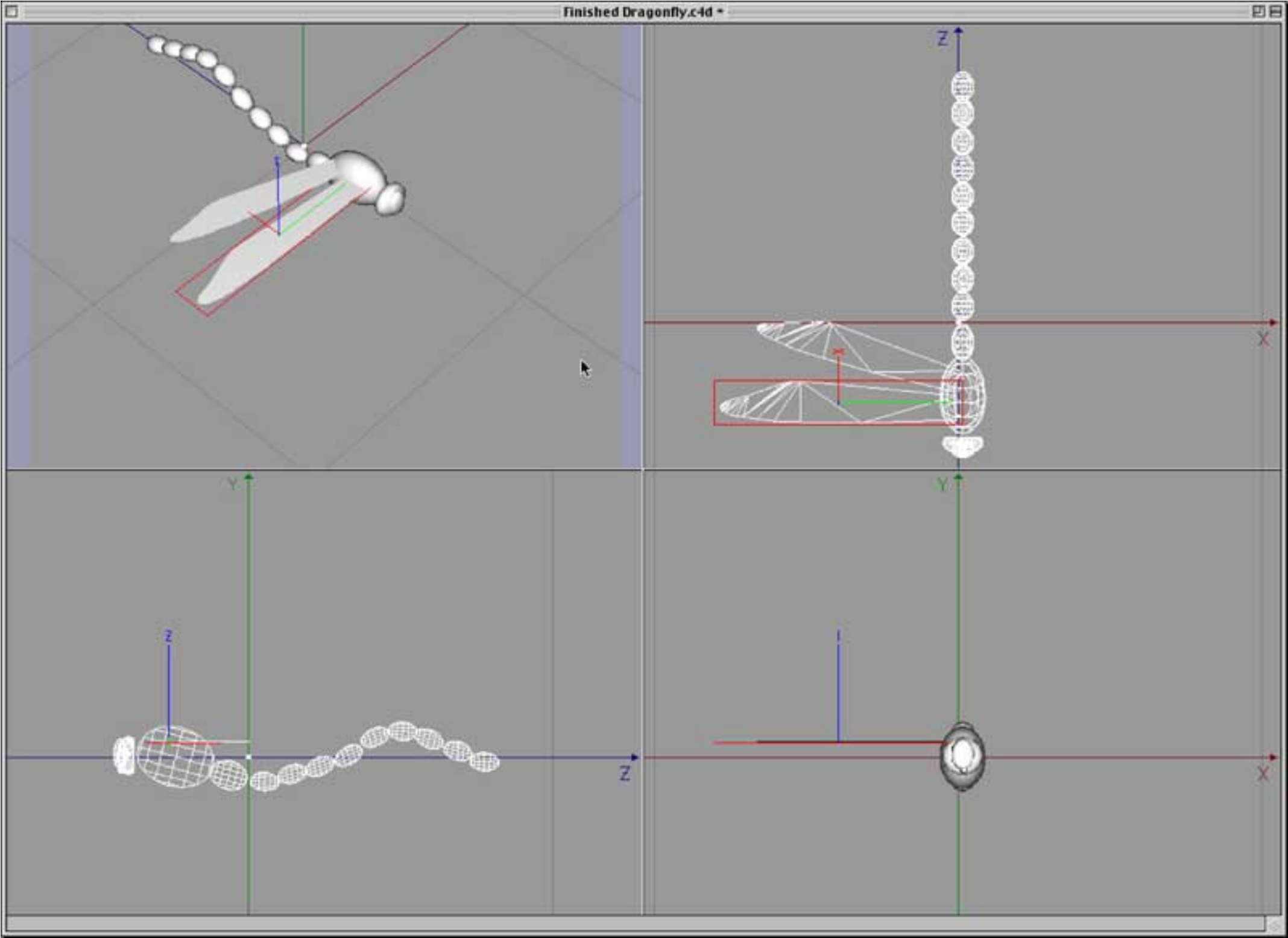


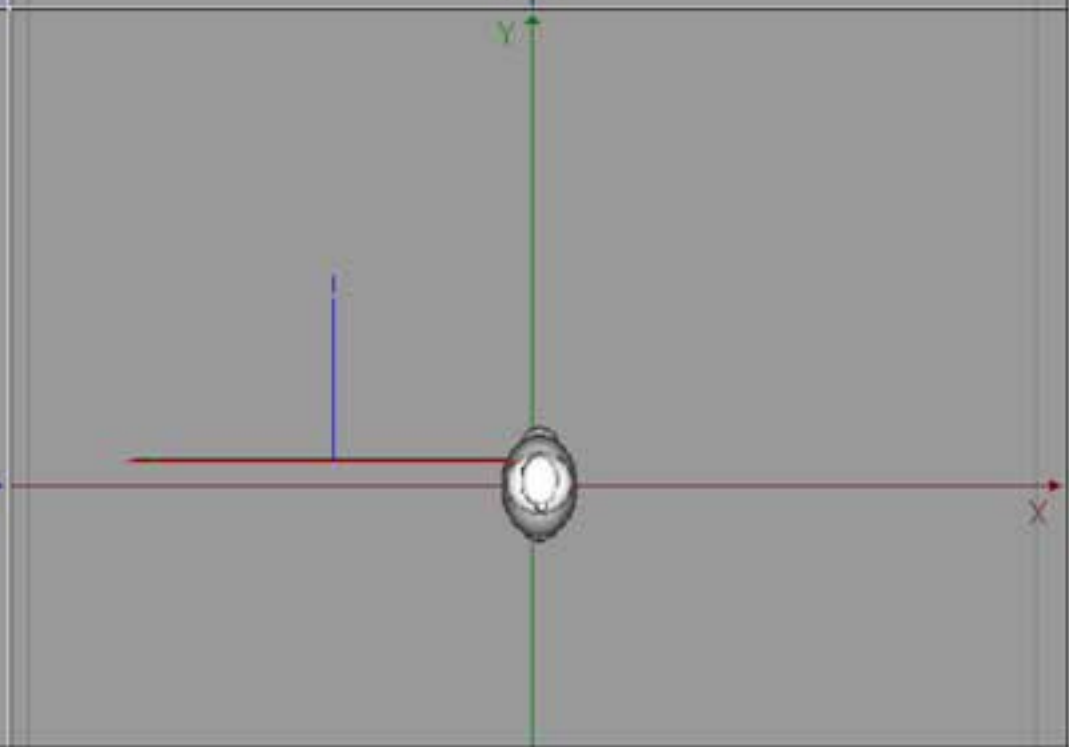
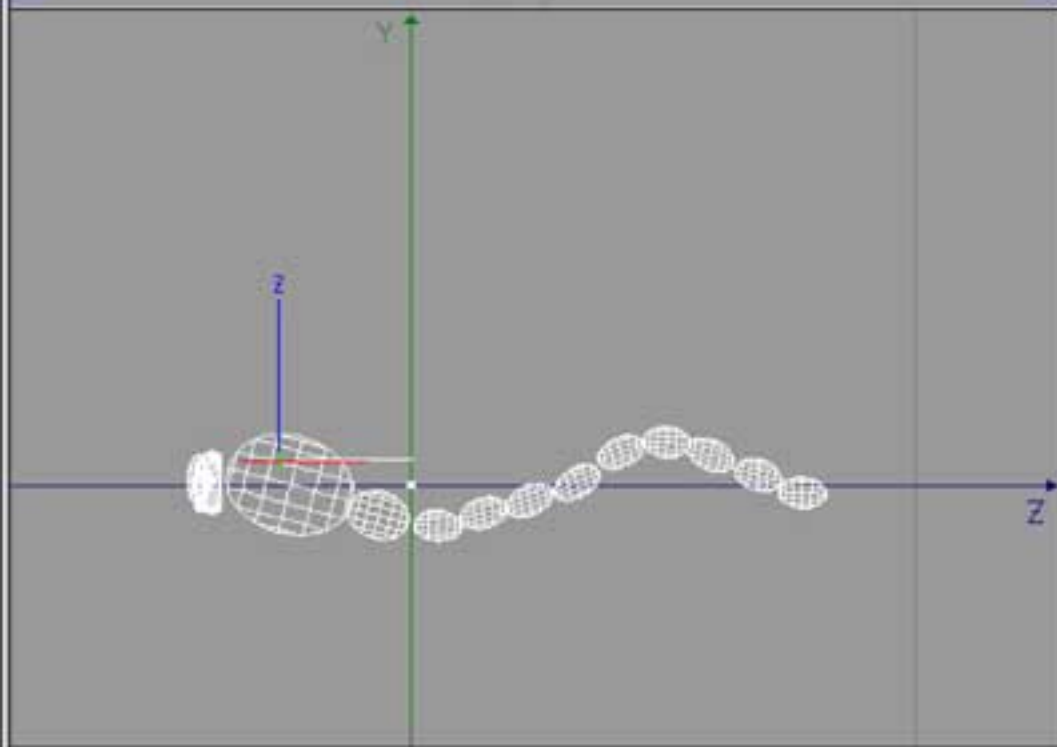
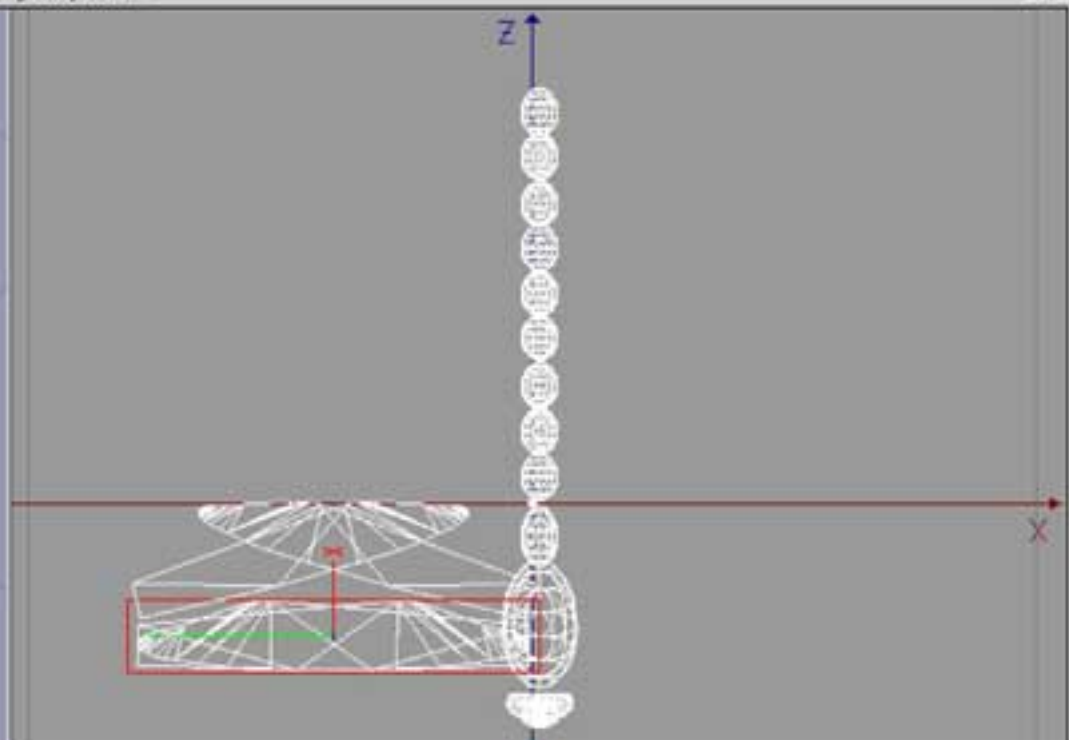
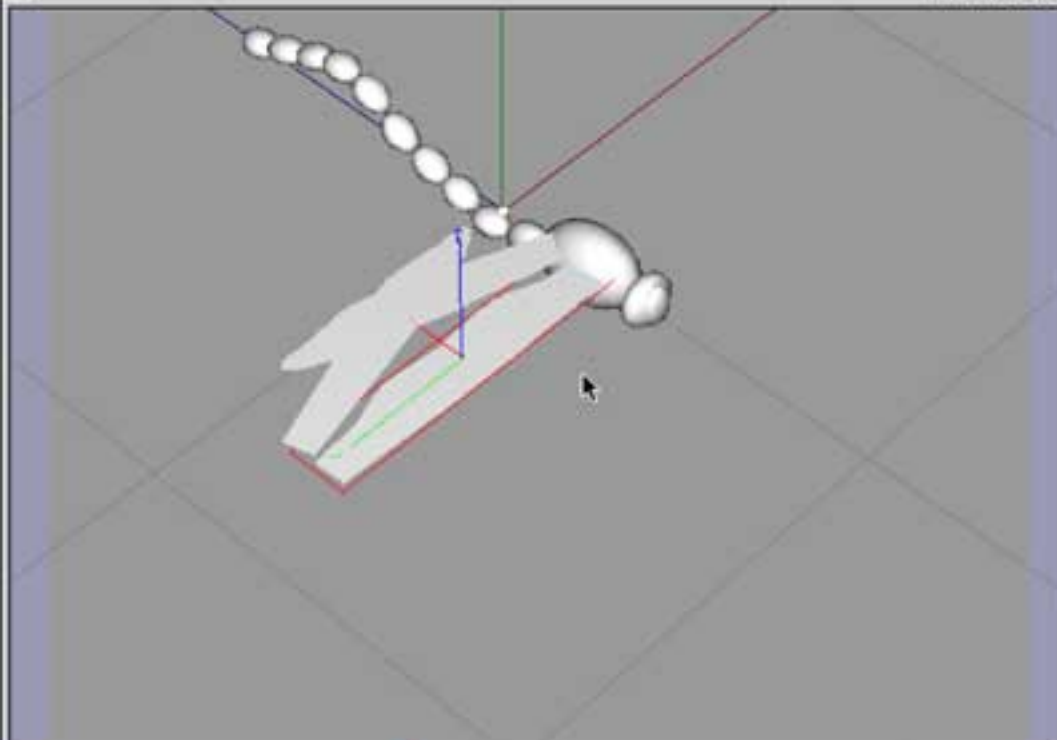














New

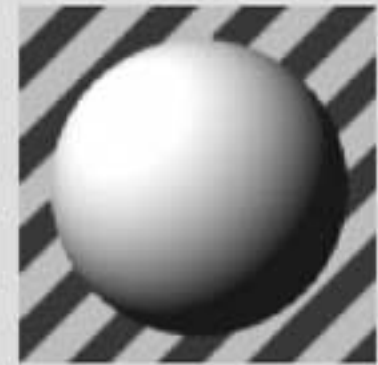


Edit material

Colour

R	<input type="range"/>	100%
G	<input type="range"/>	100%
B	<input type="range"/>	100%
S	<input type="range"/>	100%

Colour



Texture

File...

S 100%

Edit...

Interpolation Square

- ☒ Colour
- ☐ Luminance
- ☐ Transparency
- ☐ Reflections
- ☐ Environment
- ☐ Fog
- ☐ Bump
- ☐ Genlocking
- ☐ Highlight
- ☐ Highlight Colour
- ☐ Glow
- ☐ Displacement

<

>

- ☒ Colour
- Luminance
- Transparency
- Reflection
- Environment
- Fog
- Bump
- Genlocking
- Highlight
- Highlight Colour
- Glow
- Displacement

Cancel

OK

Time Line

Edit material

Colour

R	<input type="range"/>	100 %
G	<input type="range"/>	100 %
B	<input type="range"/>	100 %
S	<input type="range"/>	0 %



Colour



Texture

File...

dragonfly dark brown

S	<input type="range"/>	100 %
---	-----------------------	-------



Edit...

Interpolation

Square

225x287x16

- ☒ Colour
- ☐ Luminance
- ☐ Transparency
- ☐ Reflections
- ☐ Environment
- ☐ Fog
- ☐ Bump
- ☐ Genlocking
- ☐ Highlight
- ☐ Highlight Colour
- ☐ Glow
- ☐ Displacement

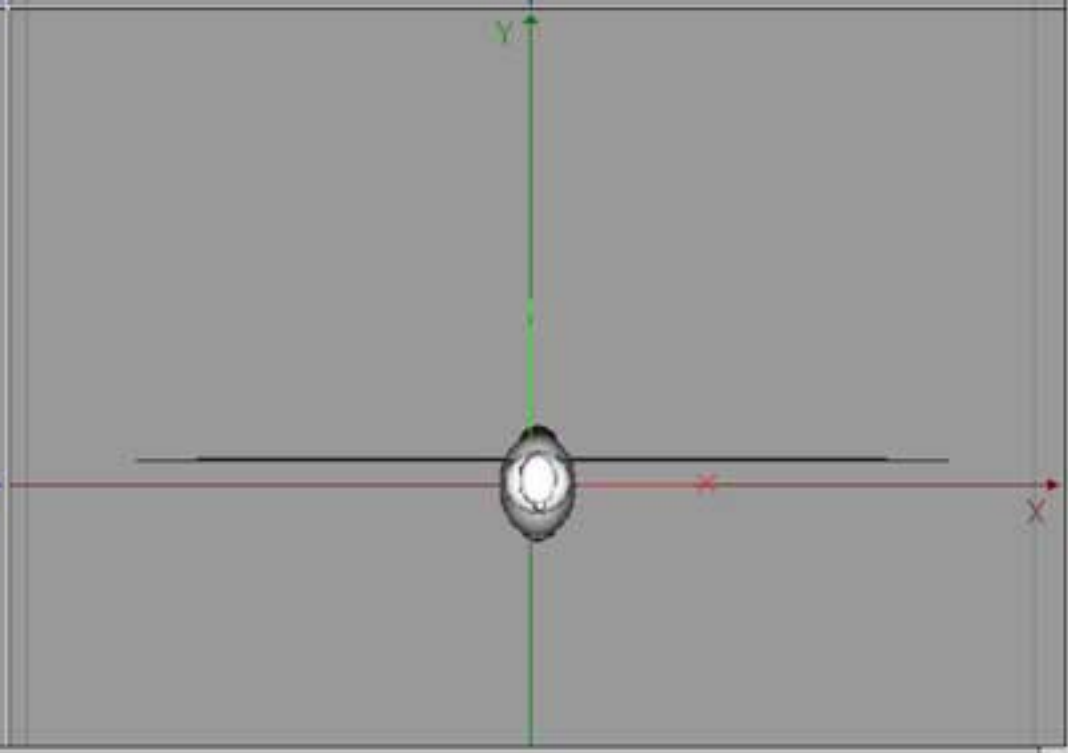
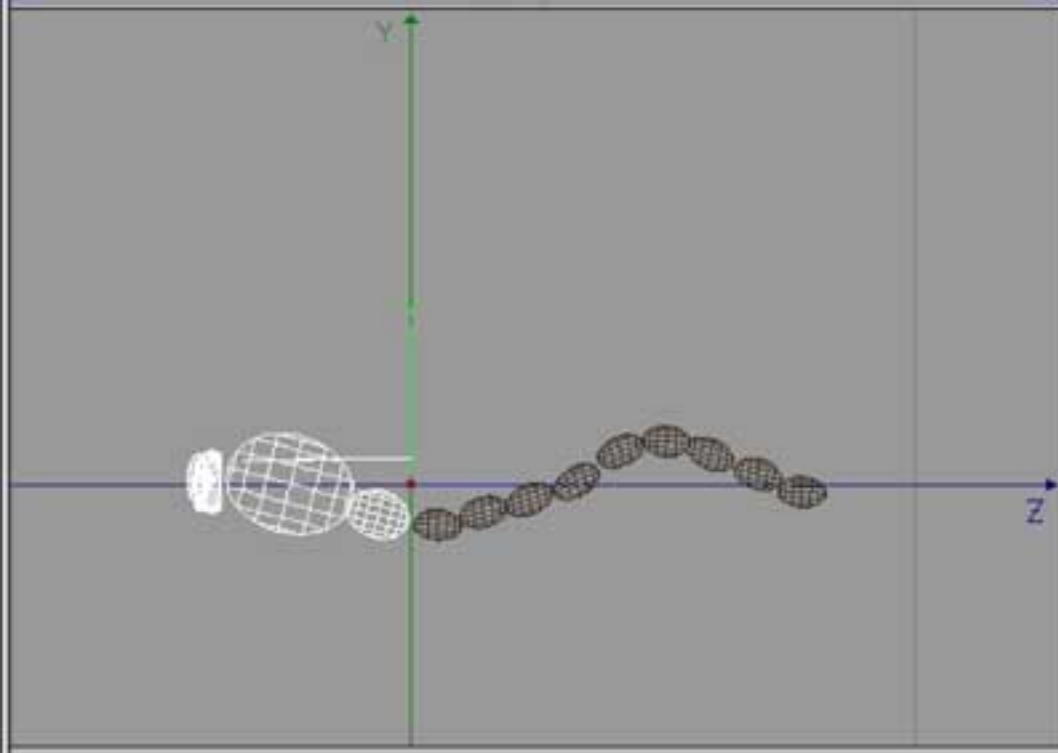
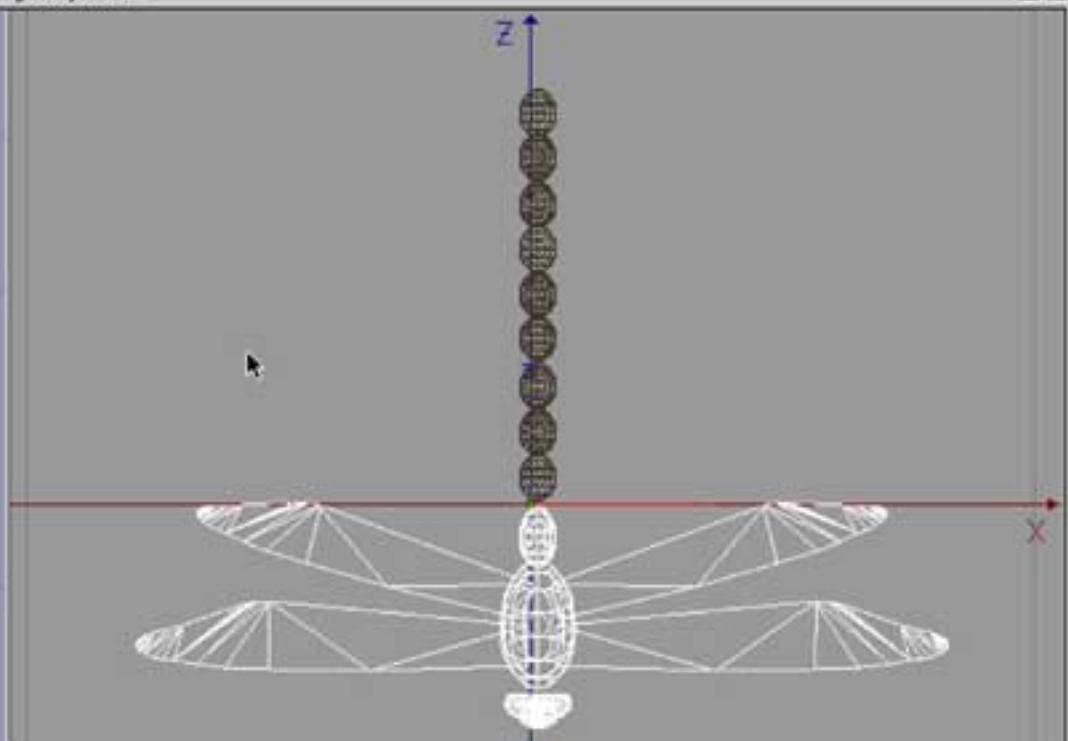
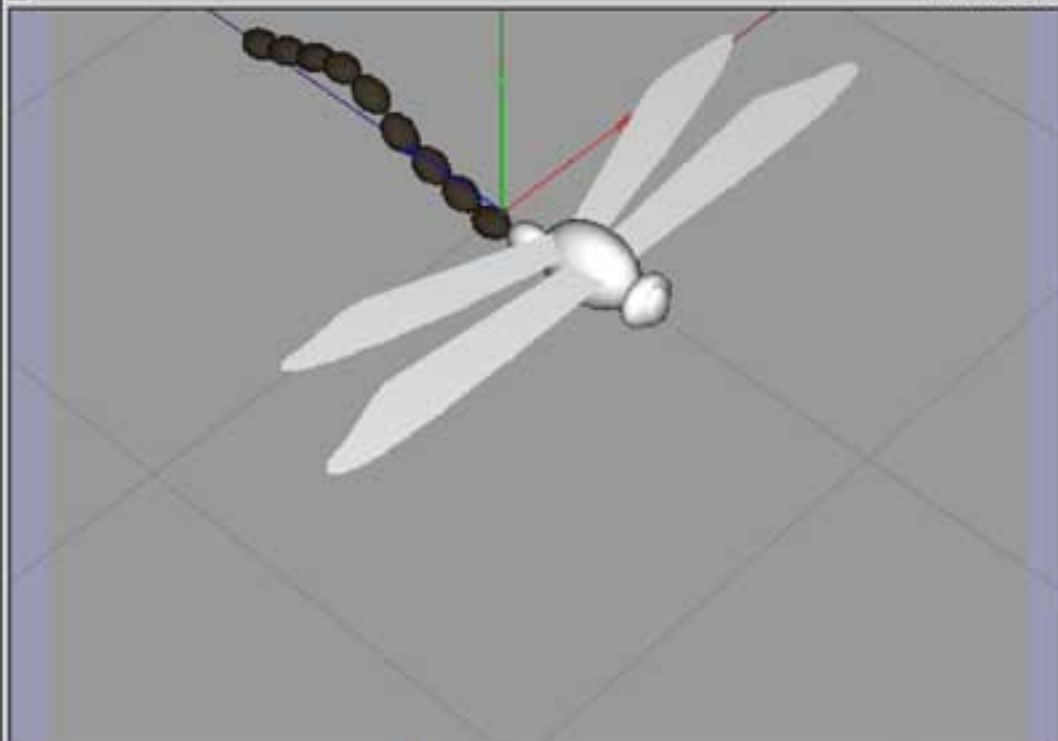
<

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Colour

Cancel

OK





Eyes



Mouth



Nose



Tail



Thorax



Wings

Object Manager

▶ Front Right Wing.1

▶ Front Right Wing

Mouth

Nose

▶ Eyes

▶ Tail

Lower Thorax

Upper Thorax

