

Chapter 4

SubTools and FiberMesh

Learning Objectives

After completing this chapter, you will be able to:

- *Work with the SubTool subpalette*
- *Work with the FiberMesh subpalette*
- *Understand different settings of FiberMesh*
- *Create scenes using different subtools and FiberMesh*



INTRODUCTION TO SUBTOOLS IN ZBrush

In ZBrush, subtools are sub components of an object. You can work individually on different components by selecting a subtool from the **SubTool** subpalette. For instance, to model a human head, you can model its face, eyes, and teeth separately. After modeling, you can work on each one of the subtools separately without disturbing the other subtools. Subtools play an important role in modeling complex objects.

SubTool SUBPALETTE

The **SubTool** subpalette is located in the **Tool** palette. This subpalette becomes visible only when an object is created in the canvas, refer to Figure 4-1. In this case, a sphere has been created in the canvas and a single thumbnail will be displayed in the **SubTool** subpalette. However, if an object is composed of multiple components, the **SubTool** subpalette displays the thumbnails of the list of objects that constitute it. For instance, the *DemoSoldier.ZPR* file in the **LightBox** browser is composed of different components, such as the main body, shirt, vest, backpack, and so on. These different elements can be termed as the subtools.

To load the *DemoSoldier.ZPR* model in the canvas, choose the **Project** tab in the **LightBox** browser. Next, double-click on the *DemoSoldier.ZPR* file in the **LightBox** browser and choose the **LightBox** browser again to close it. Press and hold the left mouse button and drag the cursor in the canvas; the model will be loaded in the canvas. After loading the model, choose the **Edit** button from the top shelf.

On loading the *DemoSoldier.ZPR* file in the canvas, the **SubTools** subpalette displays the thumbnails for all the objects that constitute it, refer to Figure 4-2.

The **SubTool** subpalette consists of various tools that enable you to manipulate each subtool in the list of thumbnails. You can toggle the visibility of each subtool by clicking on the eye icon corresponding to it. The tools and buttons in the **SubTool** subpalette are discussed next.



List All

The **List All** button is used to display the list of all the subtools that constitute an object. This button is activated only when an object created in the canvas consists of more than one subtool. On choosing this button, a flyout containing thumbnails for all the subtools will be displayed, refer to Figure 4-3.

New Folder

To create a new folder in the **SubTool** subpalette, select a subtool that you want to put in the folder and then choose the **New Folder** button; the **Please Enter Folder Title** window will be displayed. Next, enter the name of the folder in this window. You will notice that the new folder with that name is created in the **Subtool** subpalette and the selected subtool will move to the folder. To add more subtools in this folder, select the subtool and drag it to the folder; the selected subtool will now be a part of that folder. Note that you cannot create a folder within the folder. Also, if you delete the last subtool from the folder, the folder will be automatically deleted.

Arrow Buttons

The arrow buttons, as shown in Figure 4-4, are used to select or move the subtools in the list. These buttons are activated only when an object contains more than one subtool.

The **Select Up** button is used to select a subtool located above the currently selected subtool in the list and the **Select Down** button is used to select the subtool located below the currently selected subtool. The **Move Up** and **Move Down** buttons are used to move a subtool up or down in the list, respectively.

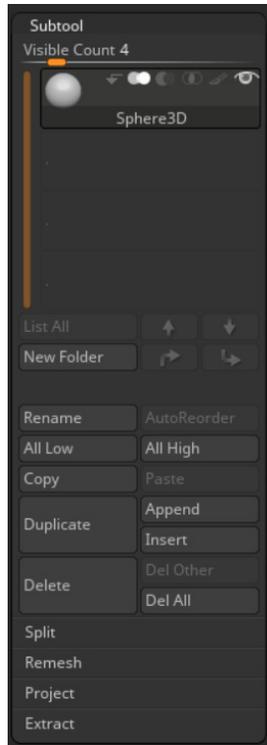


Figure 4-1 The SubTool subpalette displayed on creating a sphere

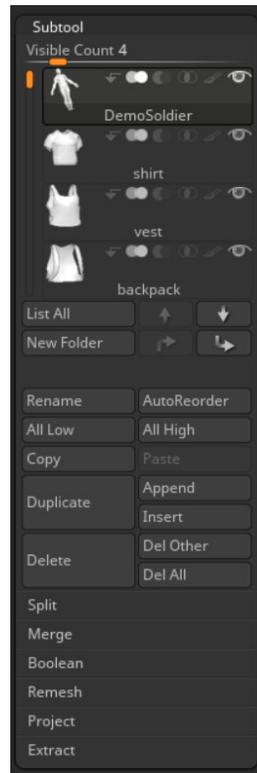


Figure 4-2 The SubTool subpalette displayed on loading the DemoSoldier

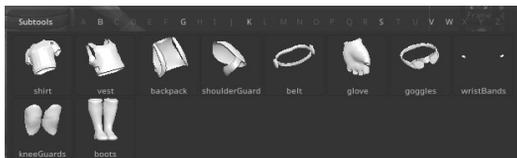


Figure 4-3 The flyout displayed on choosing the List All button

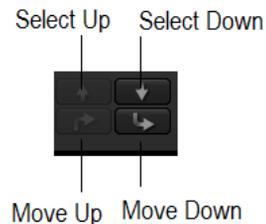


Figure 4-4 The arrow buttons

Rename

The **Rename** button is used to change the name of a particular subtool. To do so, select the required subtool in the list. Next, choose the **Rename** button from the palette; the **Please enter subtool title** window will be displayed, as shown in Figure 4-5. In this window, enter the desired new name for the subtool, and then press ENTER; the specified name will be displayed in the list.



Figure 4-5 The *Please enter subtool title* window

AutoReorder

The **AutoReorder** button is used to arrange subtools in the list according to their polygon count.

All Low

The **All Low** button is used to display all the subtools in the canvas at their lowest subdivision levels, containing the least number of polygons. Figure 4-6 shows the model of the *DemoSoldier.ZTL* file before choosing the **All Low** button and Figure 4-7 shows the model after choosing the **All Low** button in the **SubTool** subpalette.



Figure 4-6 The model of the *DemoSoldier.ZTL* before choosing the **All Low** button



Figure 4-7 The model of the *DemoSoldier.ZTL* after choosing the **All Low** button

All High

The **All High** button is used to display all the subtools in the canvas at their highest subdivision levels, containing the maximum number of polygons. If you choose the **All Low** button to display a model at its lowest subdivision level, you can switch back to its highest subdivision level by choosing the **All High** button.

Copy and Paste

These buttons are used to copy and paste the subtools from the **SubTool** palette. To do so, select the subtool in the subtool list. Next, choose the **Copy** button from the palette and then choose the **Paste** button; the copied subtool will be pasted in the **SubTool** palette.

Duplicate

The **Duplicate** button is used to create a copy of the selected subtool. To do so, select the subtool that you want to duplicate from the list of subtools and then choose the **Duplicate** button; a duplicate of the subtool will be displayed along with it in the list of subtools in the **SubTool** subpalette. When you create the duplicate of a subtool, it will overlap the existing subtool and will not be visible in the canvas. Choose the **Gizmo 3D** button to deactivate. To view the duplicate in the canvas, choose the **Move** button from the top shelf; the action line will be displayed. You can move the duplicate model using the action line, as discussed earlier.

Append

The **Append** button is used to add a new subtool to an object. On choosing this button, a flyout containing various primitive objects will be displayed, refer to Figure 4-8. Choose the required object from the flyout; the chosen object will be added to the model and will be visible in the canvas.



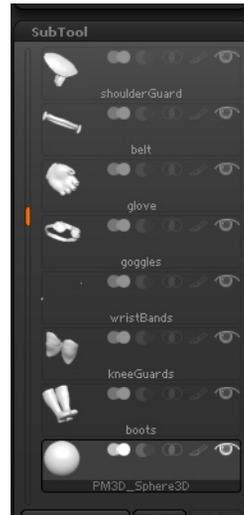
Figure 4-8 The flyout displayed on choosing the **Append** button

Insert

The **Insert** button is used to insert a Ztool below the currently selected subtool in the list. On choosing this button, a flyout will be displayed. Choose the required object from the flyout. Figure 4-9 shows a sphere that is inserted in the model by choosing the **Insert** button. In the list of subtools, the currently selected subtool is **vest**. On choosing the sphere from the flyout, a thumbnail for the sphere will be displayed just below the **boots** subtool, refer to Figure 4-10.



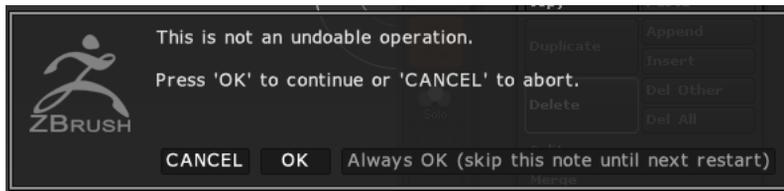
Figure 4-9 A sphere inserted inside the model



*Figure 4-10 The thumbnail for the sphere displayed below the **boots** subtool*

Delete

The **Delete** button is used to delete the currently selected subtool from the list. On choosing this button, a message box will be displayed, refer to Figure 4-11. In this message box, choose the **OK** button to delete the currently selected subtool.



*Figure 4-11 The message box displayed on choosing the **Delete** button*

Del Other

The **Del Other** button is used to delete all the subtools in the list except the currently selected subtool. On choosing this button, a message box will be displayed, asking you whether you want to continue the operation or not. Choose the **OK** button to delete the subtools.

Del All

The **Del All** button is used to delete all the subtools in the list of subtools.

Split

The **Split** area, as shown in Figure 4-12, consists of various buttons that are used to split a partially visible ZTool into a number of subtools. The number of subtools depends on the parts of the mesh that have been hidden in the viewport. By default, this button is not activated. To split a ZTool, you need to select the required parts of the ZTool that need to be split by using the CTRL+SHIFT keys.

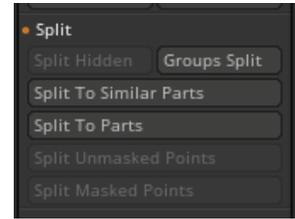


Figure 4-12 The *Split* area

Merge

The **Merge** area consists of various buttons that are used to combine different subtools together such that they form a single group.

Remesh

The **Remesh** area consists of different buttons and sliders that are used to create a new mesh on the existing ZTool. The new mesh created will be composed of quad polygons and is displayed in the list of subtools.

Project

The **Project** area consists of different buttons and sliders that are used to project the sculpting details from the visible subtool to the selected subtool.

Extract

The **Extract** area consists of different buttons and sliders that are used to extract a new mesh from the selected subtool. These buttons and sliders are used in combination with the Mask brushes. The Mask brushes enable you to draw any desired shape and then extract it from the base model. To do so, choose the **Extract** button first and then the **Accept** button located below it; the new mesh extracted from the subtool will be displayed in the list of subtools. The **Extract** button is ideal for creating clothes on a human body.

FiberMesh IN ZBrush

The **FiberMesh** subpalette is used to create a fiber mesh on the surface of an object. The **FiberMesh** subpalette is located in the **Tool** palette, refer to Figure 4-13. This subpalette is displayed only when an object created in the canvas is converted into a polymesh. You can create hair, fur, grass, and so on, from the object using different settings in this subpalette. The different types of groom brushes available in the **Brush** palette enable you to modify the shape of the fibrous mesh created on the surface of an object.

For creating fibers, you need to have a surface on which the fibers will be generated. So before creating fibers, select the area

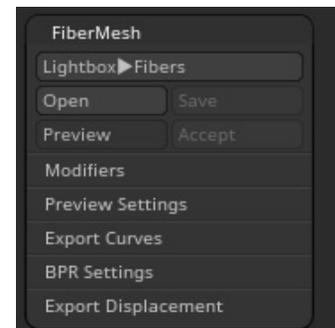


Figure 4-13 The *FiberMesh* subpalette

on the surface where you want the mesh to be generated. The area can be selected by using the mask brush. To understand the working of the **FiberMesh** subpalette, load the *DemoHead.ZTL* file from the **LightBox** browser; refer to Figure 4-14.

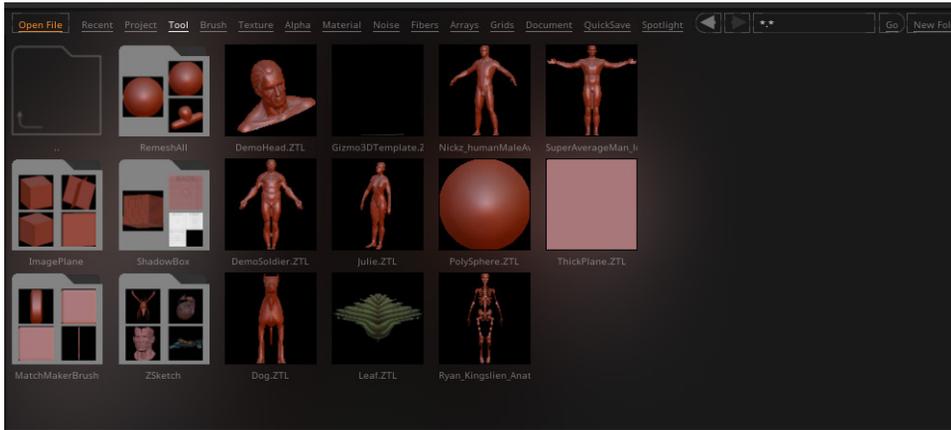


Figure 4-14 The *DemoHead.ZTL* file chosen from the **LightBox** browser

After loading the model in the canvas, choose the **Edit** button from the top shelf and then click twice on the **Divide** button in the **Geometry** subpalette such that the value of the **SDiv** slider becomes 5. Next, press and hold the CTRL key and then draw a mask on the head of the model, as shown in Figure 4-15. After drawing the mask on the head, choose the **Preview** button in the **FiberMesh** subpalette, as shown in Figure 4-16; a fiber mesh will be created on the masked area, as shown in Figure 4-17.



Figure 4-15 A mask drawn on the head of the model

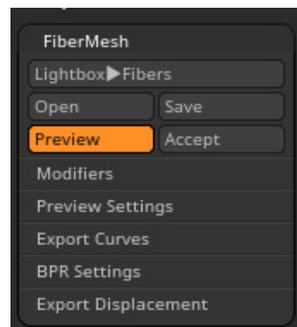


Figure 4-16 The **Preview** button chosen from the **FiberMesh** subpalette

In the **Preview** mode, you can modify the mesh using different tools and settings in the **Modifiers** area, refer to Figure 4-18. Once you get the desired mesh, you can expand the **Modifiers** area and adjust the settings as required. Next, choose the **Accept** button from the **FiberMesh** subpalette; a message box will be displayed, prompting you to activate the fast preview rendering mode of the mesh, as shown in Figure 4-19.

In this message box, choose the **Yes** button; the rendered preview of the mesh will be displayed, as shown in Figure 4-20. Also, the new mesh will be displayed as a subtool in the **SubTool** subpalette.



Figure 4-17 The fiber mesh created on the masked area of the head

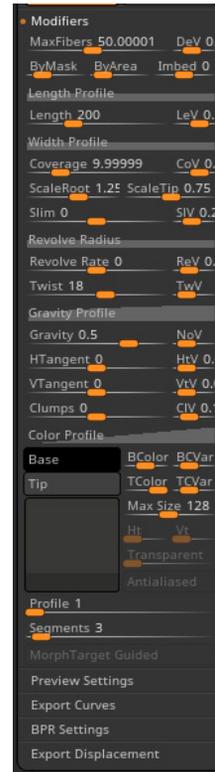


Figure 4-18 The Modifiers area

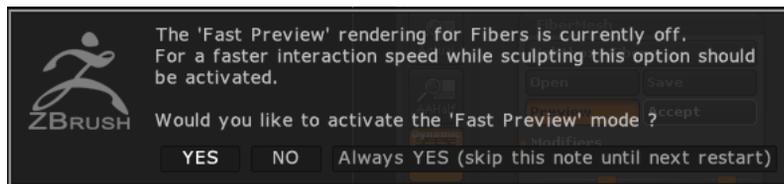


Figure 4-19 Message box displayed on choosing the **Accept** button

FiberMesh Settings

The different buttons and sliders in the **FiberMesh** subpalette in the **Tool** palette help to create different types of fibers and hairstyles. These buttons and sliders are discussed next.

LightBox Fibers

The **LightBox Fibers** button is used to display the Lightbox containing different types of inbuilt fiber meshes present in ZBrush, refer to Figure 4-21. To apply any inbuilt fiber to an object, double-click on it in the **LightBox** browser; the fibre mesh will be displayed on the surface of the object.



Figure 4-20 The final rendered preview of the fiber mesh

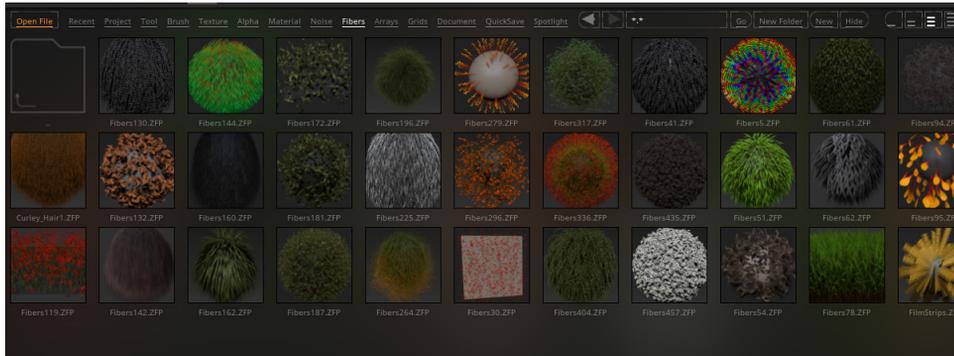


Figure 4-21 The inbuilt fibres in the **LightBox** browser

Open

The **Open** button is used to open the saved fiber meshes and then apply them to the surface of an object. On choosing this button, the **Load Fibers Preset** dialog box will be displayed, as shown in Figure 4-22. Choose the desired fiber mesh from this dialog box. Next, choose the **Open** button; the fiber mesh will be applied to the object.

Save

The **Save** button is used to save the current settings of a fiber mesh as a preset which can later be applied to any fiber mesh. On choosing this button, the **Save Fibers Preset** dialog box will be displayed. This dialog box enables you to save the fiber mesh preset with the required name.

Preview

The **Preview** button is used to view the fiber mesh on the surface of an object in the canvas. In the **Preview** mode, you can change the length, color, and other attributes of the fiber mesh using different attributes in the **Modifiers** area. If you rotate the object in this mode, the fiber mesh will disappear temporarily.

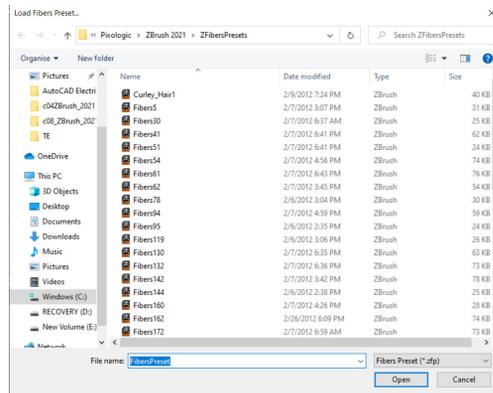


Figure 4-22 The Load Fibers Preset dialog box

Accept

The **Accept** button is used to convert the fiber mesh into a subtool that can be sculpted and painted using different types of brushes. On choosing this button, the different attributes in the **Modifiers** area are deactivated and the mesh cannot be modified.

Modifiers

The **Modifiers** area consists of different attributes that enable you to modify the appearance of a fiber mesh. These attributes are active only when the **Preview** button is chosen. Some of these attributes are discussed next.

MaxFibers

The **MaxFibers** slider is used to generate the required number of fibers on the fiber mesh. Figure 4-23 shows a mesh containing 2000 fibers and Figure 4-24 shows a mesh containing 10,000 fibers. To create 2000 and 10,000 fibers, set the value in the **MaxFibers** slider to 2 and 10, respectively.

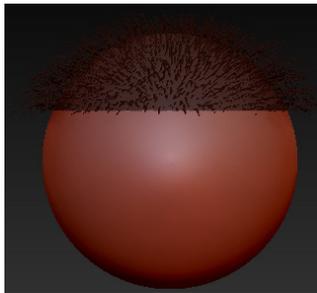


Figure 4-23 The mesh containing 2000 fibers



Figure 4-24 The mesh containing 10,000 fibers

DeV

The term DeV stands for Density Variations. The **DeV** slider is used to change the variation in the density of fibers in a fiber mesh.

ByMask

The **ByMask** slider is used to adjust the influence of the mask on the fibers created. A stronger intensity of mask will create longer fibers.

ByArea

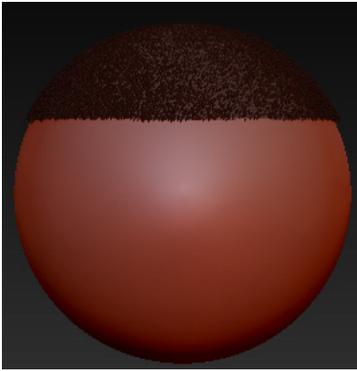
The **ByArea** slider is used to adjust the influence of the polygons on the fibers. If the polygons on a surface are bigger in size, the fibers created on that surface will be longer and thicker.

Imbed

The **Imbed** slider is used to adjust the orientation of the roots of the fibers. It is used to specify whether the root of the fibers will be lying on the surface of the object or will be imbedded deep into it.

Length

The **Length** slider is used to adjust the length of the fibers. If the value of this slider is higher, the fibers will be longer. Figure 4-25 shows the fiber mesh with the value of the **Length** slider set to **50** and Figure 4-26 shows the fiber mesh with the value of the **Length** slider set to **1000**.



*Figure 4-25 Fiber mesh with the value of the **Length** slider set to 50*



*Figure 4-26 Fiber mesh with the value of the **Length** slider set to 1000*

Coverage

The **Coverage** slider is used to change the width of the fibers. If the value of this slider is higher, the fibers will be thicker.

ScaleRoot

The **ScaleRoot** slider is used to increase or decrease the size of the roots of an individual fiber in the fiber mesh.

ScaleTip

The **ScaleTip** slider is used to increase or decrease the size of the tip of an individual fiber in the fiber mesh.

Slim

The **Slim** slider is used to decrease the depth of the fibers in the fiber mesh.

Revolve Rate

The **Revolve Rate** slider is used to curl the fibers in the fiber mesh. It is ideal for creating curly and wavy hair.

Twist

The **Twist** slider is used to create twists in the fiber strands to give them a realistic appearance.

Gravity

The **Gravity** slider is used to make the ends of the fibers drop downward. Figure 4-27 shows the fiber mesh with the value of the **Gravity** slider set to 1.



*Figure 4-27 The fiber mesh with the value of **Gravity** slider set to 1*

HTangent

The **HTangent** slider is used to change the direction of fibers horizontally. The setting of this slider can be useful for creating a feather-like mesh.

VTangent

The **VTangent** slider is used to change the direction of fibers vertically. The setting of this slider can be useful for creating a feather-like mesh.

Clumps

The **Clumps** slider is used to attract the tips of the fibers. To separate the tips of the fibers, the value of these fibers is set to negative.

Base Color

The **Base Color** button is used to choose the color for the base of the fibers. On choosing this button, a color picker window will be displayed. You can choose the required color from this window.

Tip Color

The **Tip Color** button is used to choose the color for the tip of the fibers.

Groom Brushes

The Groom brushes are used to sculpt the fiber mesh. ZBrush comes with different types of Groom brushes. To access these brushes, choose the **Current Brush** button; a flyout containing different brushes including the Groom brushes will be displayed. These brushes enable you to create different hairstyles by selecting the required brush and then dragging the cursor on the surface of the fiber mesh. Some of the Groom brushes are discussed next.

GroomBlower

The **GroomBlower** brush is used to simulate the effect of a blow dryer on wet hair. It separates the hair strands from each other. Figure 4-28 shows the effect produced by the **GroomBlower** brush.

GroomBrush1

The **GroomBrush1** brush is used to comb the hair and is similar to a real life hair brush.

GroomClumps

The **GroomClumps** brush is used to join the hair strands together to form clumps of hair, refer to Figure 4-29.



*Figure 4-28 Effect produced by the **GroomBlower** brush*



*Figure 4-29 Effect produced by the **GroomClumps** brush*

GroomColorMild

The **GroomColorMild** brush is used to paint the hair with the desired color, refer to Figure 4-30. To use this brush, select a color from the color palette located in the left shelf; the color of the mesh on which the hair is created will change. Start painting on the surface of the hair with the desired colors. You can restore the default color of the hair by choosing the white color from the color palette.

GroomHairBall

The **GroomHairBall** brush is used to roll the tips of hair into round clumps, refer to Figure 4-31.

GroomHairToss

The **GroomHairToss** brush is used to move the hair strands in different directions to create the hairstyles as required, refer to Figure 4-32.

GroomSpike

The **GroomSpike** brush is used to create spikes in the hair, refer to Figure 4-33.



Figure 4-30 Effect produced by the *GroomColorMild* brush



Figure 4-31 Effect produced by the *GroomHairBall* brush



Figure 4-32 Effect produced by the *GroomHairToss* brush



Figure 4-33 Effect produced by the *GroomSpike* brush

TUTORIALS

Before you start the tutorials of this chapter, navigate to `\Documents\ZBrushprojects` and then create a new folder with the name `c04`.

Tutorial 1

In this tutorial, you will create an ice cream cone and sculpt it using different brushes. The final output of the ice cream model is shown in Figure 4-34. **(Expected time: 20 min)**



Figure 4-34 The ice cream cone

The following steps are required to complete this tutorial:

- a. Create the cone.
- b. Create the ice cream scoop.
- c. Save the model.

Creating the Cone

In this section, you will create an ice cream cone using the **Cone 3D** primitive and sculpt it using different brushes.

1. Choose the **Init ZBrush** button from the **Preferences** palette; the message box is displayed. Choose the **Yes** button from the message box; ZBrush is initialized to its default state. To close the **LightBox** browser, choose the **LightBox** button.
2. Choose the Current Tool button from the **Tool** palette; a flyout is displayed. Choose the **Cone3D** primitive from this flyout.
3. Press and hold the left mouse button, and then drag the cursor in the canvas; a cone is created in the canvas, as shown in Figure 4-35.
4. Choose the **Edit** button from the top shelf.
5. Press and hold the left mouse button and drag the cursor downward in such a way that the cone rotates and stands vertically. While dragging the cursor, press the SHIFT key; the cone is snapped at right angle to the canvas, refer to Figure 4-36.

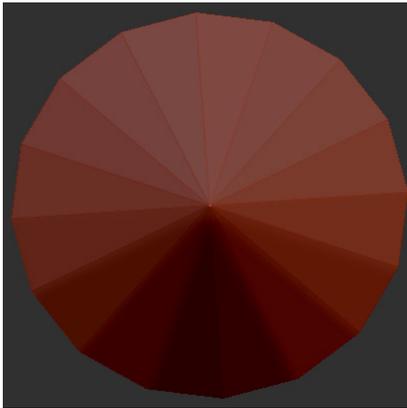


Figure 4-35 The cone created in the canvas

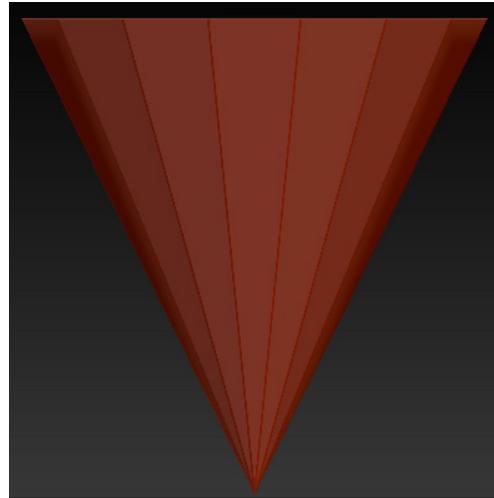


Figure 4-36 The cone snapped to the canvas

6. Expand the **Initialize** subpalette in the **Tool** palette. In this subpalette, set the values of both the **X Size** and **Y Size** sliders to **50**, refer to Figure 4-37; the radius of the cone decreases.
7. Choose the **Make PolyMesh3D** button from the **Tool** palette; the cone is converted into a polymesh.



Figure 4-37 The values set in the **X Size** and **Y Size** sliders

After converting the cone into a polymesh, you need to subdivide the geometry so that the number of polygons in the cone increase to make it smoother.

8. Set the value of the **SDiv** slider in the **Geometry** subpalette to **5** by clicking on the **Divide** button four times; the cone becomes smoother, refer to Figure 4-38.
9. In the **SubTool** subpalette, choose the **Rename** button; the **Please enter subtool title** window consisting of a text box is displayed. Enter **ice cream cone** in this text box and press ENTER; the **Cone3D** primitive is renamed as *ice cream cone*.
10. In the **Transform** palette, choose the **Activate Symmetry** button. Next, choose the **(R)** button; the **RadialCount** slider is activated. By default, the **>X<** button is chosen. To deactivate this button, choose it again. Next, choose the **>Z<** button; the radial symmetry in the Z-axis is activated. Click on the **RadialCount** slider to display the **RadialCount** edit box. Next, enter the value **60** in the **RadialCount** edit box, refer to Figure 4-39.
11. Choose the Current Brush button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **Standard** brush from this flyout.
12. Set the value of the **Draw Size** slider to **30**. Next, press and hold the left mouse button, and create the patterns at the top of the *ice cream cone*, as shown in Figure 4-40.

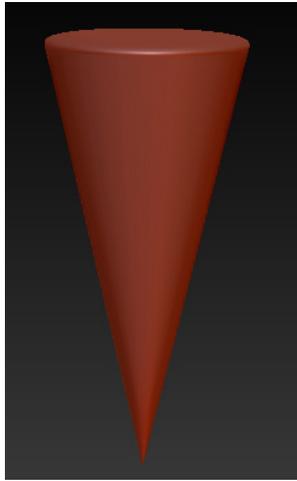


Figure 4-38 The ice cream cone smoothed

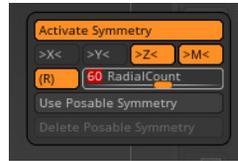


Figure 4-39 The value of the RadialCount slider set to 60

13. Choose the Current Brush button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **Layer** brush from this flyout. In the **Transform** palette, choose the **(R)** and **>Z<** buttons; the radial symmetry in the Z-axis is deactivated.
14. Expand the Stroke palette. In this palette, expand the **Lazy Mouse** area. Next, choose the **LazyMouse** button in this area, if not already chosen, as shown in Figure 4-41.



Figure 4-40 Patterns created at the top of the ice cream cone

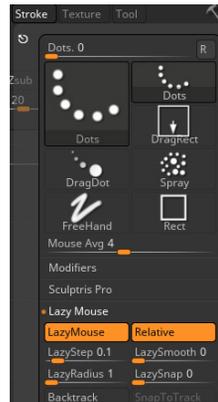


Figure 4-41 The LazyMouse button chosen from the Stroke palette

The **LazyMouse** button will enable you to draw the patterns very conveniently by dragging the red colored line that appears on choosing the **LazyMouse** button.

15. Set the value of the **Z Intensity** and **Draw Size** sliders to **40** and **12**, respectively. Next, press and hold the left mouse button and drag the cursor to create a criss-cross pattern on the entire surface of *ice cream cone*, refer to Figure 4-42.

**Tip**

In order to get straight strokes using the **LazyMouse** button, you need to press the **SHIFT** key while dragging the red colored line on the surface of an object.

Creating the Ice Cream Scoop

In this section, you will create the ice cream scoop using sphere and different sculpting brushes.

1. Expand the **SubTool** subpalette in the **Tool** palette. In this subpalette, choose the **Append** button, as shown in Figure 4-43; a flyout is displayed. Choose the **Sphere3D** primitive from this flyout; a sphere is created in the canvas and it overlaps *ice cream cone*, as shown in Figure 4-44. The thumbnail for the sphere is displayed in the **SubTool** list. Select the thumbnail of the sphere in the list and then rename it to **scoop** using the **Rename** button.



Figure 4-42 The crisscross pattern created on ice cream cone

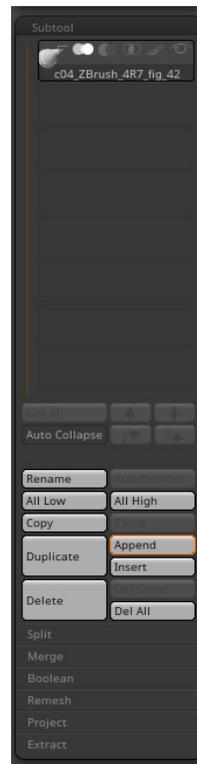


Figure 4-43 The **Append** button chosen in the **SubTool** subpalette

2. Choose the **Gizmo 3D Y** button from the top shelf to deactivate it. Next, choose the **Move** button from the top shelf; an action line is displayed. Next, press and hold the left mouse button and drag the cursor on the surface of the sphere; the size of the action line increases.
3. Hover the cursor at the centre of the middle circle of the action line, refer to Figure 4-45. Next, press and hold the left mouse button and drag the cursor upward to move the sphere at the top of *ice cream cone*.

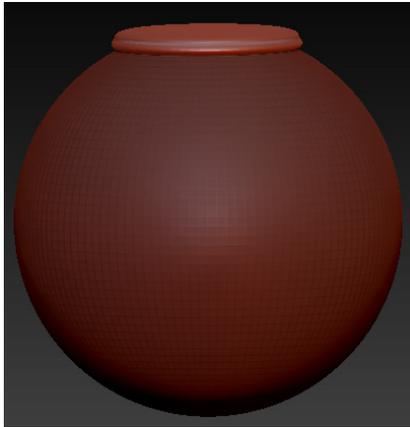


Figure 4-44 The sphere overlapping the ice cream cone

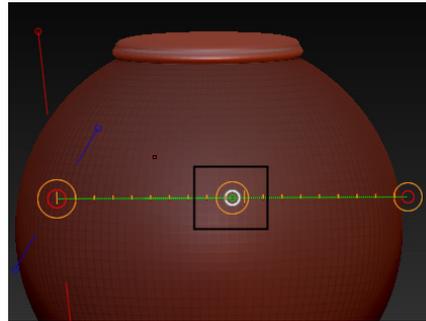


Figure 4-45 The action line

4. In the **Geometry** subpalette of the **Tool** palette, set the value of the **SDiv** slider to **5** by clicking on the **Divide** button four times; the sphere becomes smoother.
5. Expand the **Deformation** subpalette in the **Tool** palette. In this subpalette, move the **Size** slider toward left so that the size of *scoop* decreases and fits into the radius of the cone, as shown in Figure 4-46.
6. Choose the **Draw** button from the top shelf and then choose the Current Brush button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **Move** brush from this flyout.
7. Set the value of the **Draw Size** slider in the top shelf to **250**. Next, press and hold the left mouse button and move the top portion of *scoop* upward, as shown in Figure 4-47.
8. Choose the Current Brush button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **Standard** brush from this flyout.
9. Set the value of the **Draw Size** and the **Z Intensity** sliders to **80** and **25**, respectively. Next, press and hold the left mouse button and drag the cursor on the surface of *scoop* to create bumps in the *scoop*, as shown in Figure 4-48.
10. Again, choose the Current Brush button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **Spiral** brush from this flyout.
11. Set the value of the **Draw Size** and the **Z Intensity** sliders to **200** and **100**, respectively. Next, press and hold the left mouse button and drag the cursor on the top of *scoop* to create its tip, refer to Figure 4-49.

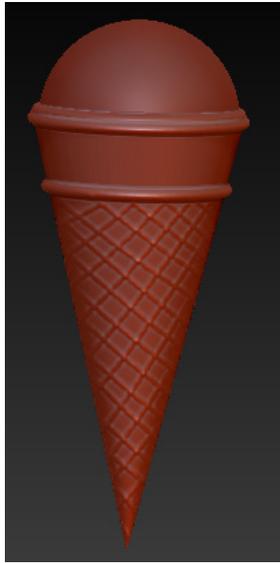


Figure 4-46 The scoop fitting inside the cone

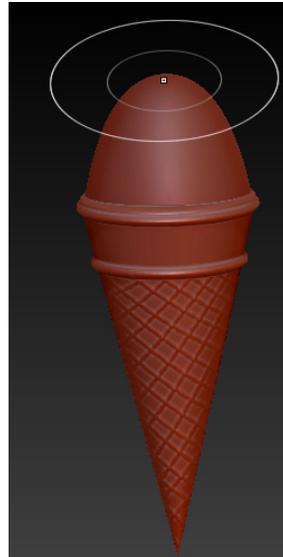


Figure 4-47 The top portion of the scoop moved up using the **Move** brush



Figure 4-48 Bumps created in the scoop using the **Standard** brush



Figure 4-49 Shape of the scoop modified using the **Spiral** brush

Saving the Model

In this section, you will save the file by following the steps given next.

1. Choose the **Save As** button from the **Tool** palette; the **Save ZTool** dialog box is displayed. In this dialog box, browse to the location `\Documents\ZBrush\projects\c04`.

2. Enter **c04tut1** in the **File name** edit box and then choose the **Save** button.

Tutorial 2

In this tutorial, you will create a monument using different subtools. The final output of the model is shown in Figure 4-50. **(Expected time: 45 min)**

The following steps are required to complete this tutorial:

- a. Create the dome of the monument.
- b. Create walls and roof of the monument.
- c. Create the door of the monument.
- d. Create different patterns on the walls of the monument.
- e. Save the model.



Figure 4-50 The final model of the monument

Creating the Dome of the Monument

In this section, you will create the dome of the monument using a sphere and different sculpting brushes.

1. Choose the **Init ZBrush** button from the **Preferences** palette; the message box is displayed. Choose the **Yes** button from the message box; ZBrush is initialized to its default state.
2. Choose the Current Tool button from the **Tool** palette; a flyout is displayed. Choose the **Sphere3D** primitive from this flyout.
3. Press and hold the left mouse button, and drag the cursor on the canvas; a sphere is created in the canvas.
4. Choose the **Edit** button from the top shelf.

5. Choose the **PolyF** button from the right shelf; the polygon edges of the sphere are displayed.
6. Press and hold the left mouse button, and drag the cursor upward in such a way that the sphere is rotated. While dragging the cursor, keep the SHIFT key pressed; the sphere is snapped at right angle to the canvas, as shown in Figure 4-51. Choose the **PolyF** button again; the polygon edges on the sphere disappear.
7. Choose the **Make PolyMesh3D** button from the **Tool** palette to convert the primitive sphere into a polymesh.
8. In the **Geometry** subpalette of the **Tool** palette, set the value of the **SDiv** slider to **5** by clicking on the **Divide** button four times.
9. Rename the sphere to **dome** using the **Rename** button in the **SubTool** subpalette.
10. Choose the Current Brush button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **ClipRect** brush from this flyout; a message box is displayed, asking you to press CTRL+SHIFT keys to activate this brush. Choose the **OK** button to close this message box.
11. Press CTRL+SHIFT keys to activate the **ClipRect** brush and then press and hold the left mouse button. Next, drag the cursor over *dome*; a rectangular marquee selection appears. Select the upper half of *dome*. Now, release the left mouse button; the lower half of *dome* is deleted, refer to Figure 4-52.

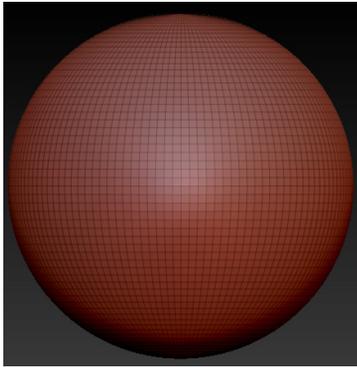


Figure 4-51 The sphere snapped to the canvas

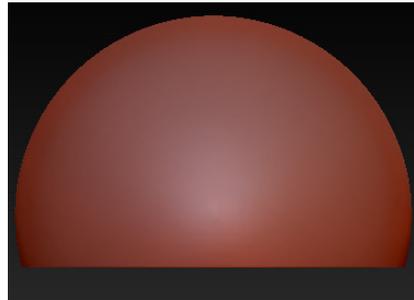


Figure 4-52 The lower half of the dome deleted

12. Expand the **Transform** palette and then choose the **Activate Symmetry** button. Next, choose the **(R)** button; the **RadialCount** slider is activated. By default, the **>X<** button is chosen. To deactivate this button, choose it again. Next, choose the **>Y<** button; the radial symmetry in the Y-axis is activated. Set the value of the **RadialCount** slider to **60**, refer to Figure 4-53.
13. Choose the Current Brush button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **ClayBuildup** brush from this flyout.

14. Choose the Current Stroke button from the left shelf; a flyout containing different types of strokes is displayed. Choose the **DragRect** stroke from this flyout.
15. Choose the Current Alpha button from the left shelf; a flyout containing different alpha images is displayed. Choose the **Alpha 28** alpha image from this flyout.
16. In the top shelf, set the parameters, as shown in Figure 4-54.



Figure 4-53 Radial symmetry activated in Z-axis



Figure 4-54 Settings in the top shelf

17. Press and hold the left mouse button and drag the cursor on the lower part of *dome* to create a pattern, as shown in Figure 4-55.
18. Choose the Current Brush button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **Standard** brush from this flyout.
19. In the **Transform** palette, set the value of the **RadialCount** slider to **30**, as shown in Figure 4-56. Next, set the parameters in the top shelf, as shown in Figure 4-57.

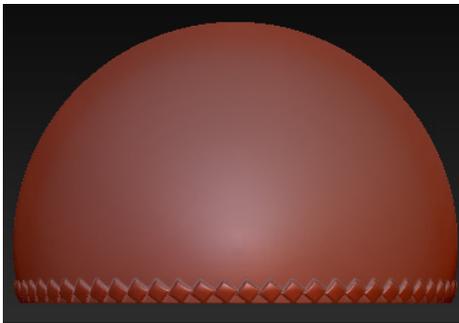


Figure 4-55 Pattern created on the lower part of the dome

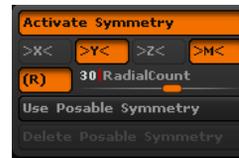


Figure 4-56 The value of the RadialCount slider set to 30

20. Choose the Current Stroke button from the left shelf; a flyout containing different types of strokes is displayed. Choose the **FreeHand** stroke from this flyout.
21. Press and hold the left mouse button and hover the cursor at the top of *dome*. Next, drag the cursor downward to create vertical lines on *dome*, as shown in Figure 4-58. While dragging the cursor, press and hold the SHIFT key to get straight strokes.
22. Similarly, create horizontal lines on *dome* by dragging the cursor from left to right; the tiles will be created, as shown in Figure 4-59.



Figure 4-57 Settings in the top shelf

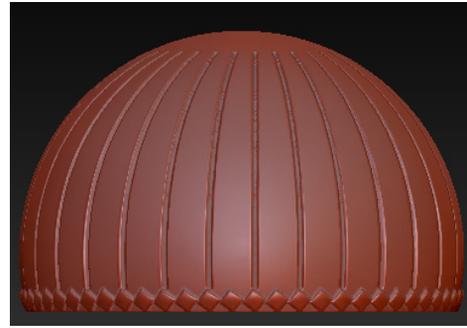


Figure 4-58 Vertical lines created on the dome

23. Choose the Current Stroke button from the left shelf; a flyout containing different types of strokes is displayed. Choose the **DragRect** stroke from this flyout.
24. Choose the Current Alpha button from the left shelf; a flyout containing different alpha images is displayed. Choose the **Alpha 17** alpha image from this flyout.
25. Choose the **Zadd** button from the top shelf. Next, set the value of the **Z Intensity** slider to **30** and the **Draw Size** slider to **38**. Press and hold the left mouse button and drag the cursor at the bottom tiles of the dome to create the pattern on *dome*, refer to Figure 4-60. Next, deactivate the symmetry.
26. In the **SubTool** subpalette, choose the **Append** button; a flyout is displayed. Choose **Sphere3D_1** from this flyout; a new sphere is created in the canvas and it overlaps the existing sphere. Make sure that you select the thumbnail for the newly created sphere from the **SubTool** list and rename it as **dome top**.
27. Make sure the **Gizmo 3D Y** button is deactivated. Choose the **Move** button from the top shelf and move **dome top** upward in such a way that it touches the top of **dome**. Next, in the **Geometry** subpalette of the **Tool** palette, set the value of the **SDiv** slider to **5** by clicking on the **Divide** button four times.
28. Expand the **Deformation** subpalette in the **Tool** palette. In this subpalette, move the **Size** slider toward the left so that the size of *dome top* decreases and it fits into the top of *dome*. Next, move *dome top* in such a way that its lower half portion is inserted into *dome*, refer to Figure 4-60.
29. Make sure the **Draw** button is chosen. Choose the Current Stroke button from the left shelf; a flyout containing different types of strokes is displayed. Choose the **Dot** stroke from this flyout.
30. Choose the Current Alpha button from the left shelf; a flyout containing different alpha images is displayed. Choose **Alpha off** from this flyout.
31. Choose the **Draw** button from the top shelf. Next, choose the **Activate Symmetry** button from the **Transform** palette. Next, choose the **(R)** button; the **RadialCount** slider is activated.

By default, the **>X<** button is chosen. To deactivate this button, choose it again. Next, choose the **>Y<** button; the radial symmetry in the Y-axis is activated. Set the value **40** in the **RadialCount** slider .



Figure 4-59 Tiles created on the dome

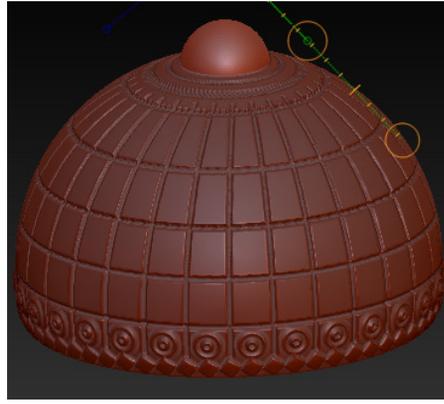


Figure 4-60 The dome top scaled and moved to the top

32. Set the value of the **Z Intensity** slider to **40** and the **Draw Size** slider to **32**. Next, press and hold the left mouse button and drag the cursor on the surface of *dome top* to create a radial pattern, as shown in Figure 4-61.

Next, you will create the finial for the monument using the **CurveLathe** brush.

33. Before using the **CurveLathe** brush on *dome top*, you have to make sure all lower division levels are deleted. To do so, choose the **Del Lower** button from the **Geometry** subpalette of the **Tool** palette, as shown in Figure 4-62.



Figure 4-61 Pattern created on the dome top using radial symmetry

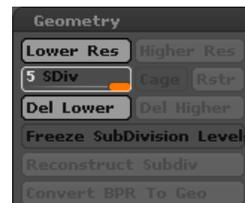


Figure 4-62 The **Del Lower** button chosen in the **Geometry** subpalette

34. Choose the **(R)** and **>Y<** buttons in the **Transform** palette; the radial symmetry in the Y-axis is deactivated.

35. Choose the Current Brush button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **CurveLathe** brush from this flyout. Next, press and hold the left mouse button and draw a profile curve at the top of *dome top*, refer to Figure 4-63. Release the left mouse button; a finial is created on the surface of *dome top*, as shown in Figure 4-63.

Creating Walls and the Roof of the Monument

In this section, you will create the walls, roof, and pillars of the monument using the cylinder primitive and different sculpting brushes.

1. Choose the **Append** button in the **SubTool** subpalette; a flyout is displayed. Choose the **Cylinder3D** primitive from this flyout; a cylinder is created in the canvas and it overlaps the *dome*, as shown in Figure 4-64. The thumbnail for the cylinder is displayed in the **SubTool** list. Make sure that you select the thumbnail for the cylinder in the list. Next, rename it to **walls**.



Figure 4-63 Finial created on the dome top using the **CurveLathe** brush



Figure 4-64 Cylinder overlapping the dome

2. Expand the **Geometry** subpalette. In this subpalette, click on the **Reconstruct Subdiv** button twice, as shown in Figure 4-65; a low resolution model of *walls* having less number of segments is displayed.
3. Make sure the **Gizmo 3D Y** button is deactivated. Choose the **Move** button from the top shelf; an action line is displayed. Move *walls* using the action line in such a way that *walls* lie below *dome*, as shown in Figure 4-66.
4. Expand the **Deformation** subpalette in the **Tool** palette.

You need to increase the height of *walls* along the Z-axis using the **Size** slider.

5. Deactivate the x and y options corresponding to the **Size** slider by choosing the **x** and **y** buttons located on the right side of the slider.

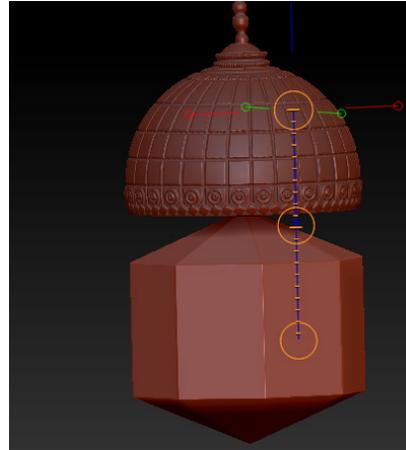
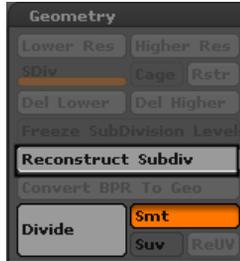


Figure 4-65 The **Reconstruct Subdiv** button chosen from the **Geometry** subpalette

Figure 4-66 The walls moved below the dome

6. Set the value of the **Size** slider to **55** by dragging the slider toward right; the height of the cylinder increases along the Z-axis. Alternatively, you can enter the value **55** in the edit box displayed on clicking on the slider.
7. Choose the **Draw** button from the top shelf. Choose the Current Brush button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **ClipRect** brush from this flyout; a dialog box is displayed, asking you to press CTRL+SHIFT keys to activate this brush. Choose the **OK** button to close this dialog box.
8. Press CTRL+SHIFT keys to activate the **ClipRect** brush and then press and hold the left mouse button. Next, drag the cursor over the cylinder; a rectangular marquee selection appears. Make a marquee selection on *walls*, as shown in Figure 4-67. Now, release the left mouse button; the lower and upper parts are deleted.
9. Make sure the **Gizmo 3D Y** button is deactivated. Choose the **Move** button from the top shelf and move *walls* using the action line, as shown in Figure 4-68.
10. Choose the **Append** button in the **SubTool** subpalette; a flyout is displayed. Choose **Cylinder3D** from this flyout; a cylinder is created in the canvas. Select the thumbnail for the newly created cylinder from the **SubTool** list. Rename it to **roof**.
11. Expand the **Deformations** subpalette in the **Tool** palette. Decrease the size of *roof* along the Z-axis by choosing the **z** button and moving the **Size** slider toward left. Similarly, increase the size of *roof* along the X and Y axes. Make sure the **Move** button is chosen from the top shelf. Now, using the action line, move *roof* below *dome*, refer to Figure 4-69.
12. Choose *walls* from the **SubTool** list. Expand the **Deformation** subpalette, and increase the size of *walls* along the X and Y axes, as shown in Figure 4-70. Make sure the **Move** button is chosen and the **Gizmo 3D Y** button is deactivated from the top shelf. Now, using the action line, move *walls* below *roof*.

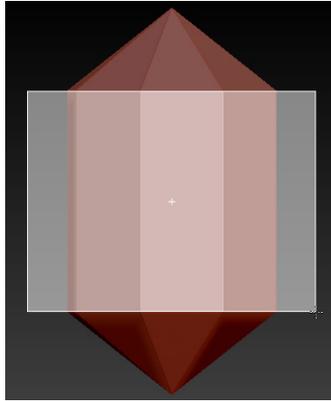


Figure 4-67 Marquee selection on the walls

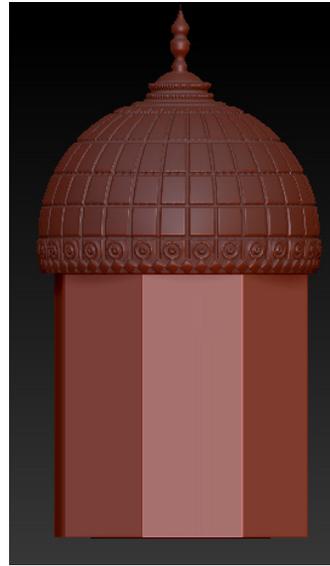


Figure 4-68 The walls moved under the dome

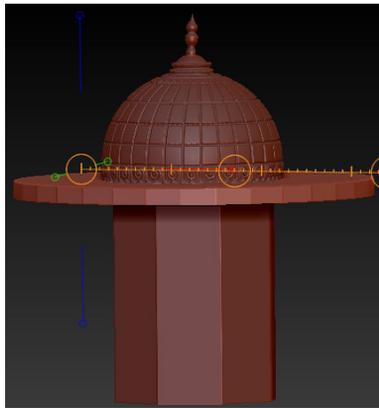


Figure 4-69 The roof scaled and moved below the dome

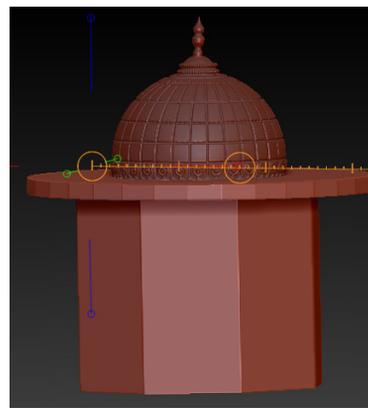


Figure 4-70 The size of the walls increased along X and Y axes

13. In the **SubTool** subpalette, select *roof* from the list of subtools. In this subpalette, choose the **Duplicate** button; a copy of *roof* is created and displayed in the **SubTool** list. Select the duplicate *roof* from the list. Make sure the **Move** button is chosen and the **Gizmo 3D Y** button is deactivated from the top shelf. Now, using the action line, move the duplicate *roof* below walls.
14. Expand the **Deformation** subpalette and increase the size of the duplicate *roof* along the X and Y axes, refer to Figure 4-71.
15. In the **SubTool** subpalette, select *roof* from the list of subtools. Next, choose the **Activate Symmetry** button from the **Transform** palette. Choose the **(R)** button; the **RadialCount** slider is activated. By default, the **>X<** button is chosen. To deactivate this button, choose

it again. Next, choose the **>Z<** button; the radial symmetry in the Z-axis is activated. In the **RadialCount** edit box, enter the value **46**, refer to Figure 4-72.

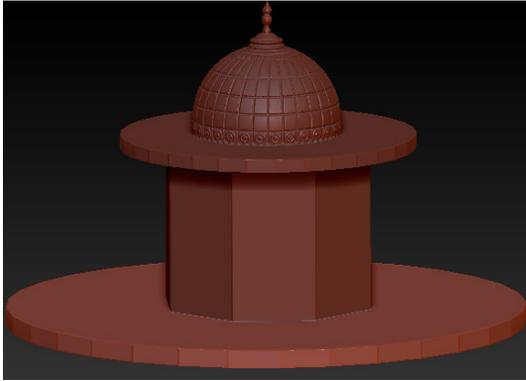


Figure 4-71 Duplicate roof scaled along the X and Y axes



Figure 4-72 The value of **RadialCount** slider set to 46

16. Choose the **Draw** button from the top shelf, if not already chosen and then choose the **InsertHRing** brush from the **Brush** tab of the **LightBox** browser.
17. Choose the Current Stroke button from the left shelf; a flyout containing different types of strokes is displayed. Choose the **Dots** stroke from this flyout, if not already chosen.
18. In the top view, press and hold the left mouse button and drag the cursor at the corners of the *roof* to create the railings, refer to Figure 4-73.

Next, you will create pillars for the monument using the **CurveLathe** brush.

19. Choose the **(R)** and **>Z<** buttons in the **Transform** palette; the radial symmetry in the Z-axis is deactivated.
20. Choose the Current Brush button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **CurveLathe** brush from this flyout. Next, press and hold the left mouse button and draw a profile curve below *roof*. Release the left mouse button; a pillar is created, refer to Figure 4-74.
21. Make sure the **Gizmo 3D Y** button is deactivated. Choose the **Move** button from the top shelf; an action line is displayed. Press and hold the left mouse button and drag the cursor vertically to increase the size of the action line. Next, press the CTRL key and move the pillar on the left side using the action line; a duplicate copy of the pillar is displayed. Next, move the duplicate pillar to the other side of *walls* using the action line, refer to Figure 4-75.

Creating the Door of the Monument

In this section, you will create the door of the monument using a plane and the **Projection Master** dialog box.

1. Choose the **Append** button in the **SubTool** subpalette; a flyout is displayed. Choose **Plane3D** from this flyout; a plane is created in the canvas. The thumbnail for the plane is displayed

in the **SubTool** list. Make sure that you select the thumbnail for the plane in the list. Next, rename it to **door**.



Figure 4-73 Railing created using the *InsertHRing* brush

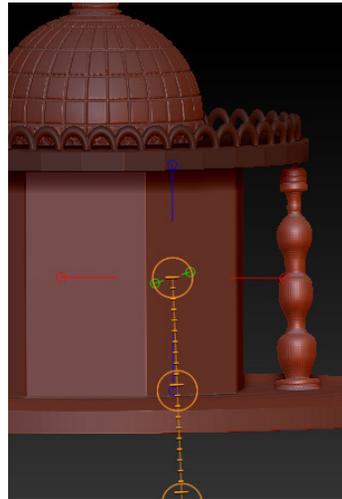


Figure 4-74 Pillar created using the *CurveLathe* brush

2. Expand the **Deformations** subpalette in the **Tool** palette. You need to rotate *door* along the Y-axis using the **Rotate** slider.
3. Deactivate the x and z options corresponding to the **Rotate** slider by choosing the **x** and **z** buttons located on the right side of the slider. Next, activate the y option by choosing the **y** button.
4. Set the value of the **Rotate** slider by entering the value **-90** in the edit box displayed on clicking on the slider; *door* is rotated along the Y-axis.
5. Press and hold the left mouse button and drag the cursor in the canvas toward the left; the side view is displayed. Make sure the **Gizmo 3D Y** button is deactivated. Choose the **Move** button from the top shelf. Next, move the *door* to the front of *walls* using the action line. Next, switch back to the front view by dragging the cursor toward right.
6. In the **Deformation** subpalette of the **Tool** palette, deactivate the x option corresponding to the **Size** slider by choosing the **x** button located on the right side of the slider. Make sure the **y** and **z** buttons are chosen. Decrease the height and width of *door* by dragging the **Size** slider toward left. Next, choose the **Move** button from the top shelf and move *door*, as shown in Figure 4-76.
7. Expand the **Geometry** subpalette in the **Tool** palette. In this subpalette, click on the **Divide** button four times; the value of the **SDiv** slider becomes **5**.

8. Choose the **ZPlugin** palette; a flyout is displayed. Expand **Projection Master** from the flyout and then choose the **Projection Master** button from the top shelf; the **Projection Master** dialog box is displayed.
9. Select the **Deformation** check box from the **Projection Master** dialog box and make sure that the other check boxes are not selected, refer to Figure 4-77. Next, choose the **DROP NOW** button from this dialog box; the 3D plane is converted into its 2.5D illustration.



Figure 4-75 Copy of the pillar created and moved toward left

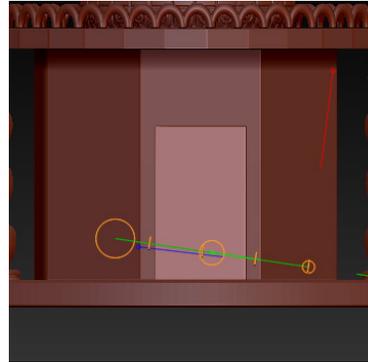


Figure 4-76 The door moved using the action line

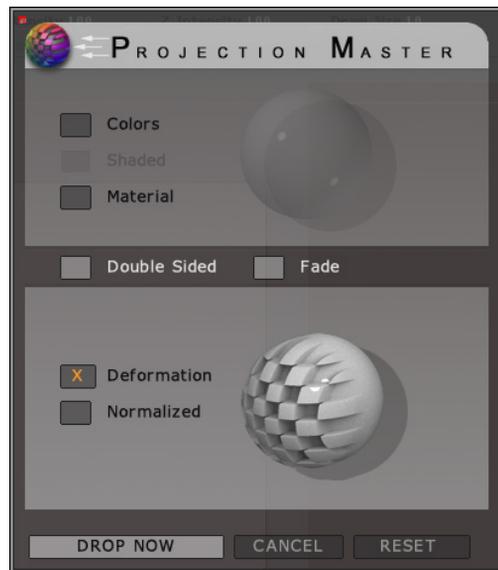


Figure 4-77 The Deformation check box selected

10. Choose the Current Stroke button from the left shelf; a flyout containing different types of strokes is displayed. Choose the **LineII** stroke from this flyout.

11. Choose the Current Alpha button from the left shelf; a flyout containing different alpha images is displayed. Choose the **Alpha 28** alpha image from this flyout.
12. Choose the **Zsub** button from the top shelf and set the value of the **Draw Size** slider to **2**. Next, press and hold the left mouse button and drag it to create the horizontal and vertical partitions of the *door*, as shown in Figure 4-78.
13. Choose the Current Stroke button from the left shelf; a flyout containing different types of strokes is displayed. Choose the **DragRect** stroke from this flyout. Next, press and hold the left mouse button and drag the cursor to create a pattern on top left panel of the door.
14. Choose the **Scale** button from the top shelf; a gyro is displayed. Hover the cursor on the pink ring of the gyro. Next, drag the cursor upward and release the left mouse button; the pattern is scaled up, refer to Figure 4-79.

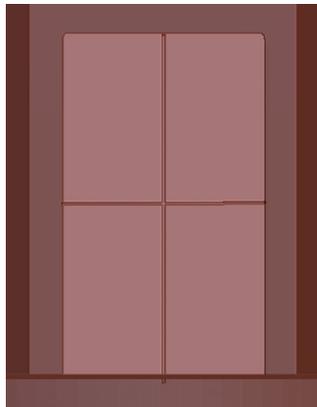


Figure 4-78 Horizontal and vertical partitions created on the door

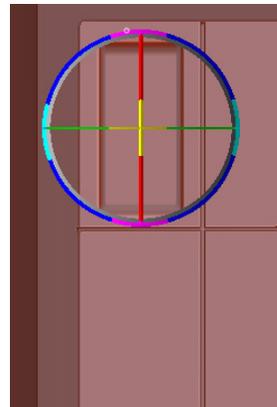


Figure 4-79 The pattern scaled up

15. Make sure the **Gizmo 3D Y** button is deactivated. Choose the **Move** button from the top shelf; a gyro is displayed. Press and hold the left mouse button, and then hover the cursor on the pink ring of the gyro. If required, drag the cursor upward to move the pattern to the centre of the panel.
16. Press **SHIFT+S** to create a copy of the pattern and then press and hold the left mouse button. Now, hover the cursor on the pink ring of the gyro. Next, drag the cursor downward to move the copy of the pattern to the centre of the bottom left panel. Next, release the left mouse button and **SHIFT+S**.
17. Make sure the **Move** button is chosen in the top shelf. Press **SHIFT+S** and then press and hold the left mouse button. Now, hover the cursor on the blue ring of the gyro. Next, drag the cursor toward the right to move the copy of the pattern to the centre of the bottom right panel. Next, release the left mouse button.
18. Press **SHIFT+S** and then press and hold the left mouse button. Now, hover the cursor on the pink ring of the gyro. Next, drag the cursor upward to move the copy of the pattern to

the centre of the top right panel. Next, release the left mouse button and SHIFT+S; the pattern is created on all the panels, refer to Figure 4-80.

- Choose the **Draw** button and then choose the **Zadd** button from the top shelf. Next, press and hold the left mouse button and drag the cursor on any of the existing patterns; another pattern is created on the existing pattern. Scale and move the pattern such that it fits into the existing pattern. Copy the newly created pattern on all the panels, refer to Figure 4-81.



Figure 4-80 Pattern created on all the panels



Figure 4-81 Newly created pattern copied on all the panels

- After copying the patterns, choose the **Draw** button from the top shelf. Next, choose the Current Alpha button from the left shelf; a flyout containing different alpha images is displayed. Choose the **Alpha 28** alpha image from this flyout.
- Set the value of the **Draw Size** and the **Z Intensity** sliders to **25** and **40**, respectively. Next, press and hold the left mouse button and drag the cursor at the centre of any of the panels; a pattern is created. Copy the newly created pattern to all the panels, as shown in Figure 4-82.
- Choose the Current Alpha button from the left shelf; a flyout containing different alpha images is displayed. Choose the **Alpha 54** alpha image from this flyout.
- Set the value of the **Draw Size** and the **Z Intensity** sliders to **17** and **100**, respectively. Next, press and hold the left mouse button and drag the cursor at the centre of *door*; a knob is created, refer to Figure 4-83.
- Choose the **Projection Master** button from the top shelf; the **Projection Master** dialog box is displayed. Next, choose the **PICKUP NOW** button from this dialog box; the 2.5D illustration is converted back into a 3D model.

Creating Different Patterns on Walls of the Monument

In this section, you will create different patterns on the walls of the monument using the **Projection Master**.

- Choose *walls* from the **SubTool** list. Next, expand the **Geometry** subpalette. In this subpalette, choose the **Del Higher** button; all subdivision levels above the current **S Div** value are deleted.



Figure 4-82 Pattern created on all the panels



Figure 4-83 Knob of the door created

2. Choose the **Smt** button in the **Geometry** subpalette; it will be deactivated. If the **Smt** button is deactivated, the hard edges of the model will be visible even if you subdivide the geometry. Next, click on the **Divide** button seven times; the value of the **SDiv** slider is set to **8**.
3. Choose the **Projection Master** button from the top shelf; the **Projection Master** dialog box is displayed. Select the **Deformation** check box from this dialog box, and make sure that the other check boxes are cleared. Next, choose the **DROP NOW** button from this dialog box.
4. Choose the Current Stroke button from the left shelf; a flyout containing different types of strokes is displayed. Choose the **Grid** stroke from this flyout.
5. Choose the Current Alpha button from the left shelf; a flyout containing different alpha images is displayed. Choose the **Alpha 28** alpha image from this flyout.
6. Choose the **Zsub** button from the top shelf. Next, press and hold the left mouse button, and drag the cursor on the top of *door*; a grid pattern is created on *walls*, as shown in Figure 4-84.
7. Similarly, create different patterns on *walls* using different strokes and alpha images, refer to Figure 4-85.
8. Choose the **Projection Master** button from the top shelf again; the **Projection Master** dialog box is displayed. Next, choose the **PICKUP NOW** button from this dialog box; the 2.5D illustration is converted back into a 3D model, refer to Figure 4-85.

Saving the Model

In this section, you will save the file using the steps given next.

1. Choose the **Save As** button from the **Tool** palette; the **Save ZTool** dialog box is displayed. In this dialog box, browse to the location `\Documents\ZBrush\projects\c04`.
2. Enter **c04tut2** in the **File name** edit box and then choose the **Save** button.



Figure 4-84 Grid pattern created on the walls



Figure 4-85 The final model of the monument

Tutorial 3

In this tutorial, you will create a tennis ball using a sphere and the **FiberMesh**. The final output of the model is shown in Figure 4-86. **(Expected time: 20 min)**

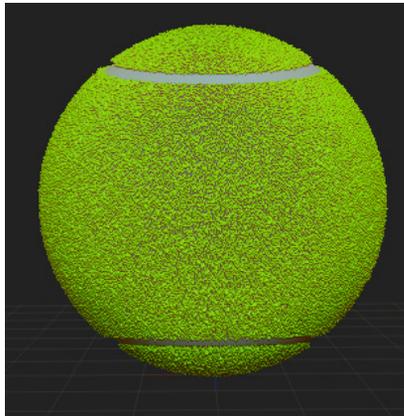


Figure 4-86 The final model of the tennis ball

The following steps are required to complete this tutorial:

- a. Create the basic model of a tennis ball.
- b. Add FiberMesh to the ball.
- c. Save the model.

Creating the Basic Model of the Tennis Ball

In this section, you will create the basic model of the ball using a sphere.

1. Choose the **Init ZBrush** button from the **Preferences** palette; the message box is displayed. Choose the **Yes** button from the message box; ZBrush is initialized to its default state.

- Choose the **DynaWax128.ZPR** file from the **Project** tab of the **LightBox** browser, located at the top of the canvas by double-clicking on it, refer to Figure 4-87. The sphere is created on the canvas, as shown in Figure 4-88.

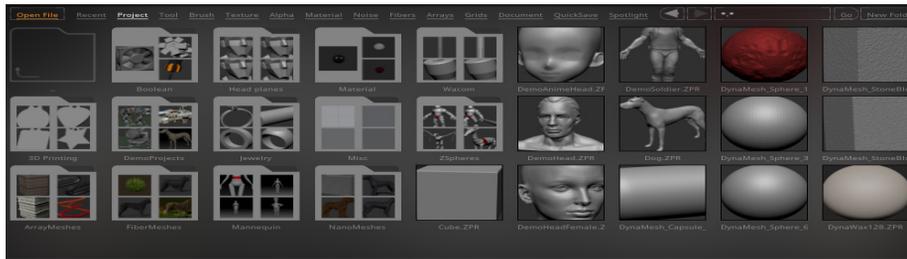


Figure 4-87 The *DynaWax128.ZPR* file chosen from the *LightBox* browser

- Expand the **Geometry** subpalette. In this subpalette, click four times on the **Divide** button; the value of the **SDiv** slider becomes **5**, refer to Figure 4-89.

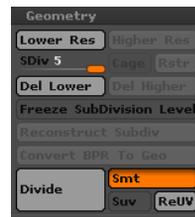


Figure 4-88 The *DynaWax128.ZPR* created in the canvas

Figure 4-89 Choosing the *Divide* button from the *Geometry* subpalette

- Expand the **SubTool** subpalette in the **Tool** palette. Next, in this subpalette, choose the **Rename** button; the **Please enter subtool title** window with a text box is displayed. Enter **tennis ball** in this text box; the sphere is renamed as *tennis ball*.
- Choose the **Activate Symmetry** button from the **Transform** palette. By default, the **>X<** button is chosen. To deactivate this button, choose it again. Next, choose the **>Y<** button; the symmetry in the Y-axis is activated.
- Choose the **Current Brush** button from the left shelf; a flyout containing different sculpting brushes is displayed. Choose the **MaskRect** brush from this flyout; a message box is displayed, asking you to press CTRL to activate this brush, as shown in Figure 4-90. Choose the **OK** button to close this message box.
- Press CTRL and then press and hold the left mouse button. Next, drag the cursor over the sphere; a rectangular marquee selection appears. Select the upper part of the sphere, refer to Figure 4-91. Now, release the left mouse button. As the symmetry in the Y-axis is activated, a mask is created on the upper and lower parts of *tennis ball*, refer to Figure 4-92.

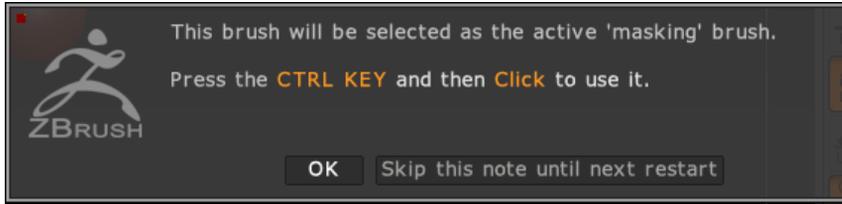


Figure 4-90 Message box displayed on choosing the *MaskRect* brush

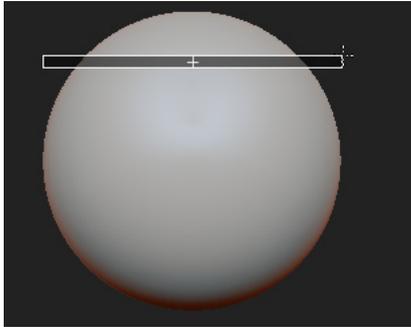


Figure 4-91 Upper part of the tennis ball selected

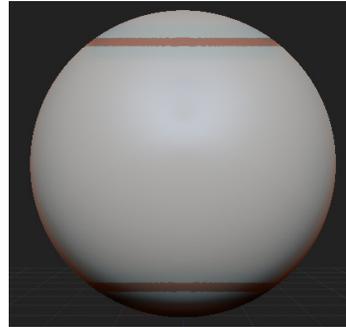


Figure 4-92 Mask created on lower and upper parts of the tennis ball

8. Press CTRL+I to invert the mask, refer to Figure 4-93.

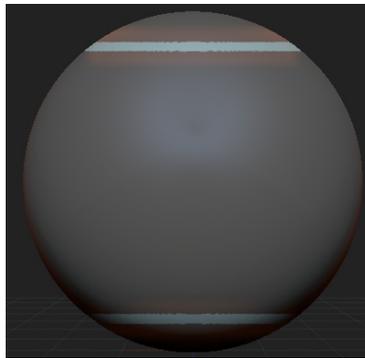


Figure 4-93 Mask on the tennis ball inverted

Adding FiberMesh to the Tennis Ball

In this section, you will add FiberMesh to *tennis ball*.

1. Expand the **FiberMesh** subpalette in the **Tool** palette. In this subpalette, choose the **Preview** button, refer to Figure 4-94. On choosing this button, a fibrous mesh is displayed on the *tennis ball*, refer to Figure 4-95.
2. Expand the **Modifiers** area in the **FiberMesh** subpalette. Click on the **MaxFibers** slider to display the **MaxFibers** edit box. Next, enter the value **200** in the **MaxFibers** edit box.



Figure 4-94 Choosing the **Preview** button from the **FiberMesh** subpalette

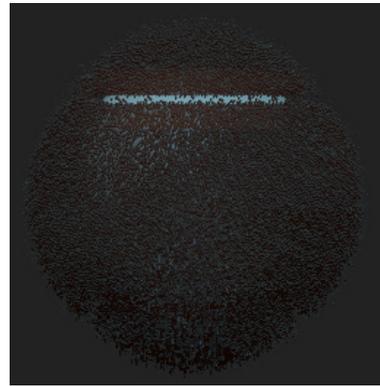


Figure 4-95 Fibrous mesh displayed on the tennis ball

3. Enter the value **20** in the **Length** edit box, as shown in Figure 4-96; the length of the fibers decreases, refer to Figure 4-97.



Figure 4-96 The value in the **Length** edit box set to **20**

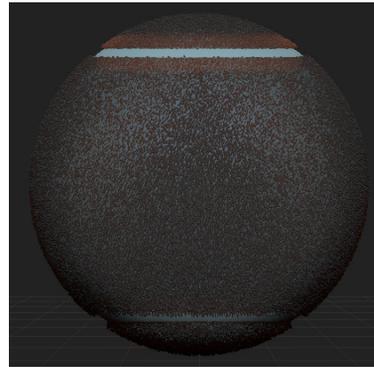


Figure 4-97 Length of the fibers decreased

4. Choose the **Base** swatch in the **Modifiers** area; a color picker window is displayed. Choose the light green color from this window, refer to Figure 4-98; the color of the roots of the fibers changes to light green.
5. Choose the **Tip** swatch in the **Modifiers** area; a color picker window is displayed. Again, choose the light green color from this window; the color of all the fibers changes to light green, refer to Figure 4-99.
6. Choose the **Accept** button from the **FiberMesh** subpalette; a message box prompting you to activate the fast preview rendering mode of the mesh will be displayed. In this message box, choose the **Yes** button; the rendered preview of the mesh will be displayed and the fiber mesh is displayed as a subtool in the **SubTool** subpalette.

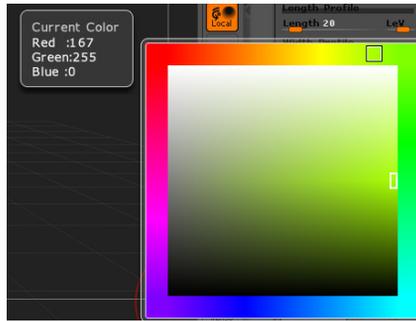


Figure 4-98 Color chosen from the color picker window

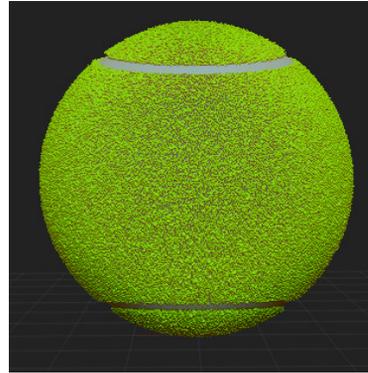


Figure 4-99 The color of the fibers changed to green

Saving the Model

In this section, you will save the file using the steps given next.

1. Choose the **Save As** button from the **Tool** palette; the **Save ZTool** dialog box is displayed. In this dialog box, browse to the location `\Documents\ZBrush\projects\c04`.
2. Enter **c04tut3** in the **File name** edit box and then choose the **Save** button.

Self-Evaluation Test

Answer the following questions and then compare them to those given at the end of this chapter:

1. Which of the following buttons is used to arrange the subtools in the list according to their polygon count?

(a) AutoReorder	(b) All High
(c) List All	(d) Append
2. Which of the following buttons converts the fiber mesh into a subtool?

(a) Preview	(b) Extract
(c) Append	(d) Accept
3. Which of the following brushes is used to roll the tips of hair into round clumps?

(a) GroomSpike	(b) GroomHairToss
(c) GroomHairBall	(d) GroomClumps
4. The _____ slider in the **FiberMesh** subpalette is used to change the width of the fibers.
5. The _____ button in the **SubTool** subpalette is used to display all the subtools in the canvas at their lowest subdivision levels.

6. The _____ slider in the **FiberMesh** subpalette is used to curl the fibers in the fiber mesh.
7. The **Length** slider in the **FiberMesh** subpalette is used to drop the ends of the fibers downward. (T/F)
8. The **Insert** button in the **SubTool** subpalette is used to insert another subtool below the currently selected subtool in the list. (T/F)
9. The **Delete Other** button in the **SubTool** subpalette is used to delete the currently selected subtool from the list. (T/F)
10. The **Open** button in the **FiberMesh** subpalette is used to view the fiber mesh on the surface of an object. (T/F)

Review Questions

Answer the following questions:

1. Which of the following sliders is used to adjust the orientation of roots of fibers?
 - (a) **DeV**
 - (b) **Imbed**
 - (c) **MaxFibers**
 - (d) **ByArea**
2. Which of the following sliders in the **FiberMesh** subpalette is used to adjust the influence of polygons on fibers?
 - (a) **ByArea**
 - (b) **Coverage**
 - (c) **Slim**
 - (d) **Imbed**
3. Which of the following sliders in the **FiberMesh** subpalette is used to decrease the depth of fibers in the fiber mesh?
 - (a) **ScaleRoot**
 - (b) **ScaleTip**
 - (c) **Slim**
 - (d) **Coverage**
4. The _____ button in the **SubTool** subpalette is used to select a subtool located above the currently selected subtool in the list.
5. The term **DeV** stands for _____ .
6. The _____ brush is used to create spikes in the fiber mesh.
7. The _____ button is used to change the name of a particular subtool.
8. The **DeV** slider in the **FiberMesh** subpalette is used to adjust the influence of the mask on the fibers created. (T/F)
9. In the **Preview** mode, you cannot change the length, color, and other attributes of the fiber mesh. (T/F)

EXERCISES

The output of the models used in the following exercises can be accessed by downloading the *c04_ZBrush_2021_exr.zip* file from *www.cadcim.com*. The path of the file is as follows: *Textbooks > Animation and Visual Effects > ZBrush > ZBrush 2021: A Comprehensive Guide*.

Exercise 1

Create the model of a house using different subtools, as shown in Figure 4-100.

(Expected time: 45 min)



Figure 4-100 Model of a house

Exercise 2

Create the scene using different subtools, refer to Figure 4-101.

(Expected time: 20 min)

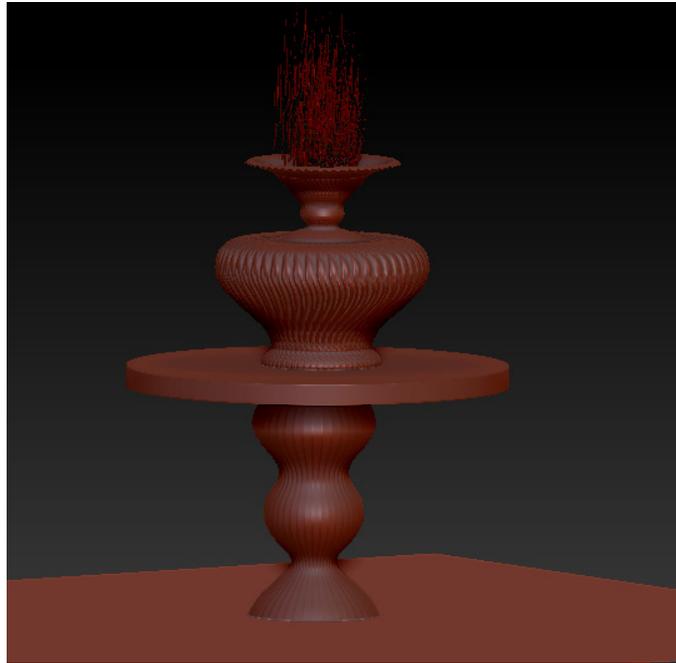


Figure 4-101 Scene to be created for Exercise 2

Answers to Self-Evaluation Test

1. a, 2. d, 3. c, 4. Coverage, 5. All Low, 6. Revolve Rate, 7. F, 8. T, 9. F, 10. F

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