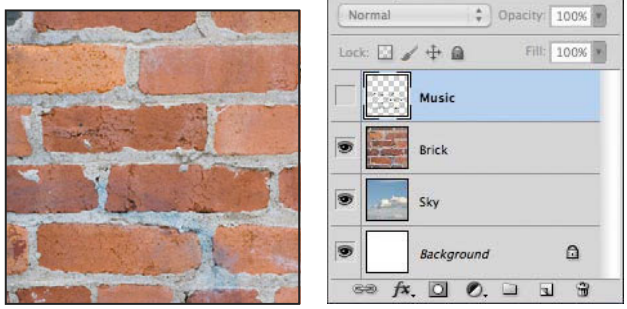
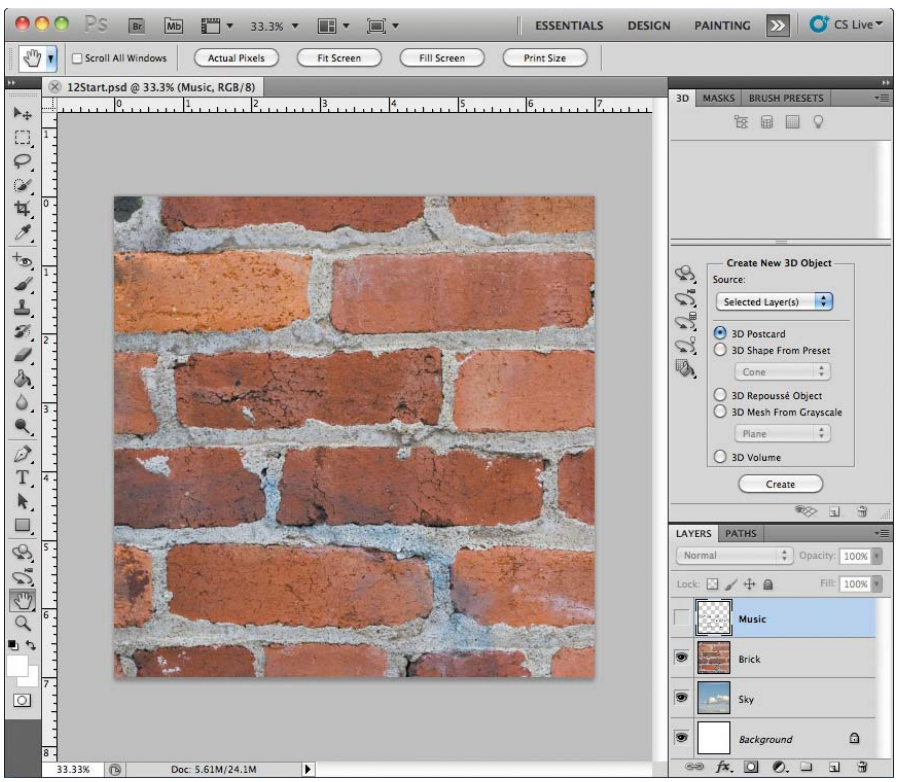
You'll start by creating a 3D hat using the layer that contains the image of a brick wall.

1 In Bridge, return to the Lesson12 folder, and then double-click the 12Start.psd thumbnail to open the file in Photoshop. The 12Start.psd file contains several layers with the contents of the final CD cover: music notes, sky, a brick wall texture, and a blank background.




2 Choose Window > Workspace > 3D to display the 3D and Layers panels, which you'll use in this lesson.



**Note:** If your video card does not support OpenGL, Photoshop may warn you that the shape will be rendered with software. Click OK to close the warning.

3 Select the Brick layer, and then choose 3D > New Shape From Layer > Hat.

Photoshop creates a 3D object, wrapping the 2D image of bricks around the shape of a hat.

## Manipulating 3D objects

The advantage to working with 3D objects is, obviously, that you can work with them in three dimensions. You can also return to a 3D layer at any time to change lighting, color, material, or position without having to re-create a lot of the art. Photoshop CS5 Extended includes several basic tools that make it easy to rotate, resize, and position 3D objects. The 3D Object Rotate tool and the other tools grouped with it in the Tools panel manipulate the object itself. In addition, the 3D Rotate Camera tool and its group change the camera positions and angles, which can have a dramatic effect on your object.

You can use the 3D tools whenever a 3D layer is selected in the Layers panel. A 3D layer behaves like any other layer—you can apply layer styles, mask it, and so on. However, a 3D layer can be quite complex.

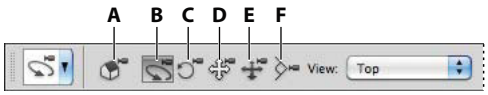
Unlike a regular layer, a 3D layer contains one or more *meshes*. A mesh defines the 3D object. In the layer you just created, the mesh is the hat shape. Each mesh, in turn, includes one or more *materials*—the appearance of a part or all of the mesh. Each material includes one or more *maps*, which are the components of the appearance. There are nine typical maps, including the Bump map, and there can be only one of each kind; however, you can also use custom maps. Each map contains one *texture*—the image that defines what the maps and materials look like. The texture may be a simple bitmap graphic or a set of layers. The same texture might be used by many different maps and materials. In the layer you just created, the image of the brick wall composes the texture.

In addition to meshes, a 3D layer also includes one or more *lights*, which affect the appearance of 3D objects and remain in a fixed position as you spin or move the object. A 3D layer also includes *cameras*, which are saved views with the objects in a particular position. The *shader* creates the final appearance based on the materials, object properties, and renderer.

That may all sound complicated, but the most important thing to remember is that some tools move objects in 3D space and some tools move the cameras that view the object.

1 In the Tools panel, select the 3D Rotate Camera tool (). When you select the 3D Rotate Camera tool, several other 3D tools become available in the options bar.

2 In the options bar, choose Top from the View pop-up menu. You're now viewing the top of the hat.




**A.** Return to initial camera position
**B.** 3D Rotate Camera tool
**C.** 3D Roll Camera tool
**D.** 3D Pan Camera tool
**E.** 3D Walk Camera tool
**F.** 3D Zoom Camera tool

**Note:** If OpenGL is enabled, a 3D widget, called the 3D Axis, appears on the screen, with red, blue, and green representing different axes. You can use the 3D Axis to position and move the object.

Options in the View menu determine the angle from which you see the object.

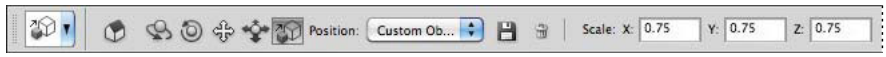
3 In the Tools panel, select the 3D Object Rotate tool ().

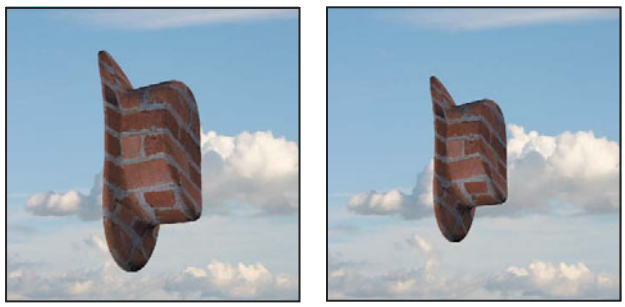
4 Click in the center of the hat and drag outward, in a circle, around the edge of the composition. Drag diagonally, as well, to get a feel for how the 3D Object Rotate tool moves the object on the x and y axes.

5 Select the 3D Object Roll tool () in the options bar. Drag the hat. Notice that you can flip the hat around, but you're constrained to movement on a single axis.

6 Select the 3D Object Pan tool (✣) in the options bar. Drag the hat from side to side, up, or down. With the 3D Object Pan tool, you can move the object on the plane, but you can't rotate it.

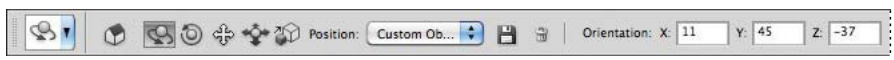
7 Select the 3D Object Scale tool (🔲) in the options bar. Click just above the hat, and drag toward the center of the hat until the X, Y, and Z values in the options bar are each **0.75**. The hat is 75% of its original size.

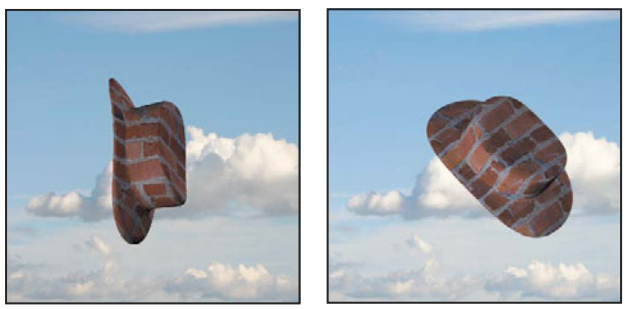


You've used several tools to manipulate the hat. Now, you'll enter values to position the hat precisely.

8 Select the 3D Object Rotate tool (🔄) in the options bar. Then, in the Orientation area of the options bar, enter **11** for X, **45** for Y, and **-37** for Z.



You can use the 3D tools to reposition and rotate a 3D object manually, or, if you know where you want the object to be, select the 3D Object Rotate tool (🔄) and type values in the options bar.

9 Choose File > Save As. Navigate to the Lesson12 folder, and save the file as **12Working.psd**. Click OK if the Photoshop Format Options dialog box appears.