

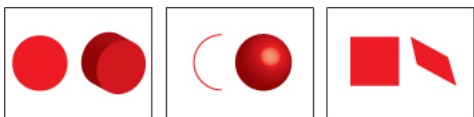
Adobe Studio on Adobe Illustrator CS2

Explore 3D effects

In this tutorial, you'll use two-dimensional shapes as the foundation for creating three-dimensional objects. Using the 3D effect, you can control the appearance of 3D objects with lighting, shading, rotation, and other properties.

There are three ways to create a 3D object:

- **Extrude and Bevel**—Uses the Z axis to give a 2D object depth by extruding the object. For example, a circle becomes a cylinder.
- **Revolve**—Uses the Y axis to revolve an object around an axis. For example, an arc becomes a circle.
- **Rotate**—Uses the Z axis to rotate 2D artwork in 3D space and change the artwork's perspective.



Extrude and Bevel, Revolve, and Rotate

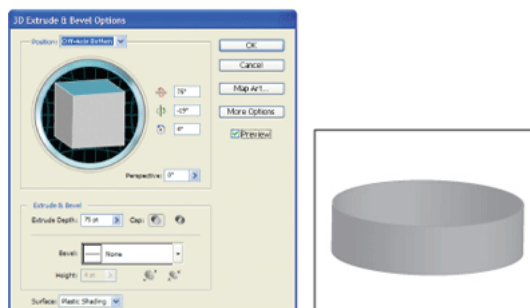
Use the 3D Extrude effect

In this lesson, you will create a can to hold a piece of soap you will create later in this tutorial.

- 1 Choose the Ellipse tool, and click and release on the artboard. In the Ellipse options dialog box, type 285 pt into the Width text field, and click on the word Height. The values are entered equally, then click OK.
- 2 Fill the shape with the color Gray from the Swatches palette. Make sure that the Stroke is None.
- 3 Choose **Effect > 3D > Extrude and Bevel**, check the Preview checkbox. Click on the title bar of the options window, and drag it to a location that allows you to see your artwork.

The Extrude and Bevel effect has taken the two-dimensional circle and extruded it using the default settings. You will change several options, including the depth and edges.

- 4 First, click on the Position Cube icon on the left side of the dialog box. Experiment with rotating the object in space by clicking and dragging the cube. When you are finished experimenting, choose **Off -Axis Bottom** from the Position drop-down menu.



The Extrude and Bevel Options dialog box and the result

- 5 Make the cylinder taller by using the Extrude Depth slider or typing into the Extrude Depth text field. Check off and on the Preview checkbox to refresh the image.

Tip: In the Extrude and Bevel section of the 3D Options window (Extrude and Bevel and Revolve 3D effects) you have a choice to make your object appear solid or hollow. Click the Revolve Cap On button to make the object appear solid, or the Revolve Cap Off button to make the object appear hollow.

- 6 Using the Bevel drop-down menu, experiment with the choice of different bevels to see different variations of edge effects you can easily create.

If you select a bevel from the Bevel drop-down menu, you can add beveling properties to carve away from, or add to the object's surface.

- The **Extent Out** button adds the bevel to the object's shape.
 - The **Extent In** button carves the bevel out of the object's original shape.
- 7 When you are finished experimenting, return to **None**.

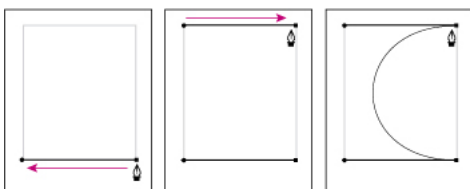
Note: 3D objects may display anti-aliasing artifacts on screen, but these artifacts disappear when the object is rasterized.

- 8 Click OK.
- 9 File > Save.

Create a revolved object

In this next lesson, you will create a bar of soap in the shape of a sphere. To begin with, create an arc that will be revolved to create the sphere.

- 1 Choose the Rectangle tool and click once on the artboard away from the artwork. When the Rectangle options dialog box appears, type 85 pt for the Width and 100 pt for the Height. Click OK.
- 2 Press D to return the rectangle back to the default colors of black stroke and white fill.
- 3 Press Ctrl+5 (Windows) or Command+5 (Mac OS) or choose View > Guides > Make Guides, to turn the rectangle into a custom guide.
- 4 As a default, guides are locked. To verify that guides are locked, choose View > Guides. If there is a check mark to the left of Lock Guides, they are locked. If there is no check mark, choose Lock Guides to lock them.
- 5 Using the Pen tool, click on the lower right corner of the rectangle guide and drag to the left until the endpoint of the direction line reaches the lower left corner, and release. This creates a directional line.
- 6 Click on the upper right corner and drag to the right until the endpoint of the directional line reaches the upper left corner and release. You have created an arc.



Click and drag to create direction lines, and the complete arc.

- 7 Choose View > Guides > Clear Guides.
- 8 Using the Selection tool, make sure the arc is selected.
- 9 Click on the Fill box in the Control palette. When the Swatches palette appears choose None.
- 10 Click on the Stroke box in the Control palette. When the Swatches palette appears choose yellow.
- 11 Choose Effect > 3D > Revolve. Click on Preview to see your changes.

The Revolve option appears. The options appear similar to the Extrude options, but have quite a different effect.

- 12 Leave the position at the default position of Off-Axis Front.

- 13 Change the edge from Left Edge to Right Edge. Your arch revolves around the designated edge. The result varies dramatically depending upon the side that you choose. Leave it set to Right Edge. Click OK.



The 3D Revolve Options dialog box, the results of the Revolve effect with Left Edge selected, and the results of Revolve with Right Edge selected.

- 14 Choose File > Save, and keep the file open for the next lesson.

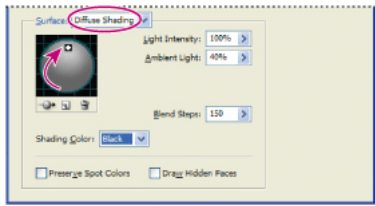
Change the lighting

In this next lesson, you will use additional options to change the strength and direction of the light source.

- 1 With the soap shape selected, double-click on 3D Revolve in the Appearance palette. If the Appearance palette is not visible, choose Window > Appearance.
- 2 Check the Preview checkbox, and press More Options.

Using More Options gives you the opportunity to create custom lighting effects on your 3D object. You will use the preview window in the lower left to reposition the lighting and change the shade color.

- 3 From the Surface drop-down menu, choose Diffuse Shading.
- 4 In the preview window, click and drag the white square that represents the light source. This changes the direction of the lighting. For this exercise, drag the light source to the top of the object.



Move the light source by dragging it and change the Surface

5 Click on the Shading Color drop-down menu, and select Custom. Click on the colored Red square to the right of Custom and use the Color Picker to select a green color, or enter values in the color text fields to the right of the picker window (we used C=90%, M=0%, Y=100%, B=0%), then click OK.

The yellow shape now has green shading applied to it.

6 Change the Ambient Light to 40%, then click OK.

Ambient light controls the brightness on the surface uniformly.

7 Choose File > Save.

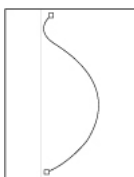
Create your own revolved artwork

Now you will create your own 3D shape. In this next lesson, you will create a path and adjust the offset to create a vase and see the interesting results you can achieve.

1 Choose View Show Rulers, or Ctrl+R (Windows) or Command+R (Mac OS).

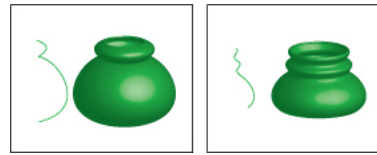
2 Create a vertical guide by clicking on the vertical ruler and dragging it out to a blank area on your artboard.

3 Choose the Pen tool and create a vertical path with several curves, representing the curves that will be replicated in the 3D shape. If it is easier, use the Pencil tool to draw a path. The size of the path is not important at this time, it can be scaled later.



Create a path to revolve

4 Using the Fill box in the Control panel, select a color for the fill, and choose None in the Stroke fill box.

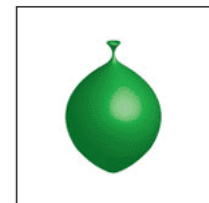
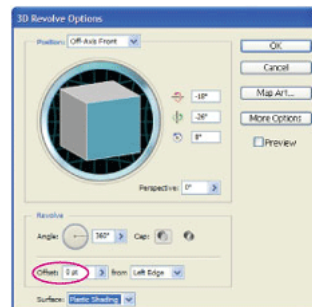


Example of curves and the resulting 3D shape

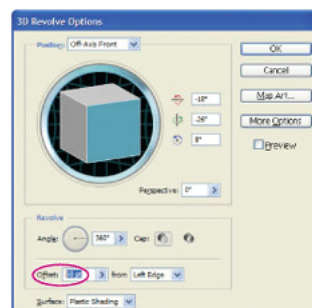
5 Choose Effect > 3D > Revolve, and check the Preview checkbox.

6 Depending upon the effect you want to achieve, you can change the axis from the Left Edge to the Right Edge.

7 To make the 3D object wider, choose an offset. The slider moves rather quickly, so type 50 into the Offset text field. If necessary, uncheck and recheck Preview to see the results.



Offset at 0 pt. and the result



Offset at 50 pt. and the result

If the lighting options are not visible, click on the More Options button to add an additional light source to the vase.

8 In the lighting preview window, click on the New button to add another light source. Position the lights so that one is on the lower left and the other is in the upper right of the preview object.

9 Change the Ambient Light to 25%.

10 Click OK.

11 Choose File > Save. Leave this file open for the next lesson.

Use the 3D Rotate effect

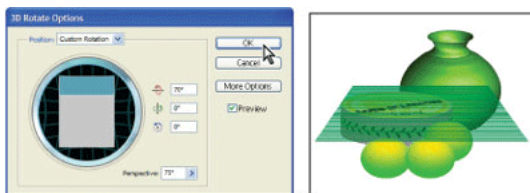
Finally you will create a place mat upon which the can, the soap, and the vase you created earlier will sit. For this example you will create a rectangle, fill it with a pattern and use the Rotate effect to make it look as though it is lying down on a flat surface.

- 1 Create a rectangle that encompasses the entire artwork.
- 2 Making sure that the Fill swatch is forward in the toolbox, select the pattern Stripes from the Swatches palette.



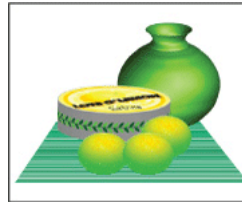
- 3 Give the rectangle a stroke of None.
- 4 With the rectangle still selected choose Effect > 3D > Rotate, and check Preview.
- 5 Using the text fields, enter 70% for the rotation around the X axis. For the rotation around the Y axis, specify 0%. Specify 0% for the rotation around the Z axis.
- 6 Enter 75% for the amount of perspective. Click OK.

The rectangle now looks like a place mat sitting on a table. Notice how the pattern also has the perspective applied to it.



The Rotate Options window, and the result

- 7 With the rectangle still selected, choose Object > Arrange > Send to Back. Using the Selection tool, position in place.



The completed illustration

Once you have applied the 3D effect to an object, it remains a live effect. In other words, you can change the scale of the object or change the color, and the 3D effect remains.

Note: Do not rotate objects with the 3D effects applied to them; you will get unexpected results. To rotate a 3D object, double-click on the Appearance palette 3D effect, and rotate the item in space using the Position preview window.

- 8 Once you have rearranged objects as you like, you have completed the lesson. Choose File > Save, then choose File > Close.

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