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Transformation and distortion

SQUASH, STRETCH, BULGE, warp, distort, rotate, skew, deform - what do all these transformations have in common? Hint: it's not how you felt after that second baked bean burrito you know you didn't need to eat. Answer: it's the Free Transform tool, the single most efficient and versatile tool Flash offers, and it will prove to be one of the most used tools in your daily animation workflow.

With the release of Adobe Flash CS4 comes two new powerful tools: 3D Rotation and 3D Translation. We can now transform and animate objects in a true 3D space natively in Flash! Transforming and distorting objects is now more powerful than ever!

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Distorting bitmaps



AS A DESIGNER and animator, I find that one of the most frequently used tools in Flash is the Free Transform tool. It is the most multifaceted tool in the toolbox and will prove to be critical to the transformation and distortion of objects and then some.

Free Transform is the tool to use when you want to scale, rotate, shear and distort your images. Free Transform is also used to edit the center point of instances of symbols. You can use Free Transform to transform imported bitmaps or graphics created with the Flash drawing tools.

There are a variety of modifier keys to be used with the Free Transform tool that allow you to transform objects in different ways, as we will discuss here.

1 Enter Free Transform mode by selecting the Free Transform tool in the toolbox or by pressing the keyboard shortcut **Q**. Let's start by transforming an imported bitmap image.

2 Break apart your imported image **⌘ B** **ctrl B** before transforming it. If you want you can convert it to a Drawing Object (Modify > Combine Objects > Union).



6 Position the cursor outside the bounding box between the handles and drag to shear the object. Hold down **⌘ alt** **ctrl alt** to shear based on the center of the object.



7 Hold down **⌘ ⌥ Shift** **ctrl alt Shift** and drag a corner handle to distort the object's perspective equally on both sides. Unfortunately Flash does not distort the image but, rather, crops it.

How to Cheat in Flash



3 When you drag any of the four corner handles, you will scale the object. The corner you drag will move while the opposite corner will remain stationary. Hold down the Shift key to scale based on the object's center.



4 If you grab any of the four center side handles, you will scale the object horizontally or vertically. This is great for squashing and stretching the object.



5 Grab one of the corner handles to rotate the object. Hold down **Shift** to constrain the rotation to 45 degree increments. Hold down **alt** to hinge the object at the opposite corner.



8 Hold down **ctrl** to distort the object in a freeform manner. But unfortunately again, Flash doesn't truly distort a bitmap image but, rather, crops it.



9 Select the Envelope tool (sub-selection of the Free Transform tool). The Envelope modifier lets you warp and distort objects.



10 Drag the points and tangent handles to modify the envelope. Changes made to the envelope will affect the shape but not the bitmap image itself.



HOT TIP

Some of the Free Transform tool features cannot modify instances of symbols, sounds, video objects or text. If you want to warp or distort text, make sure you break apart the text field into raw shapes first.

SHORTCUTS

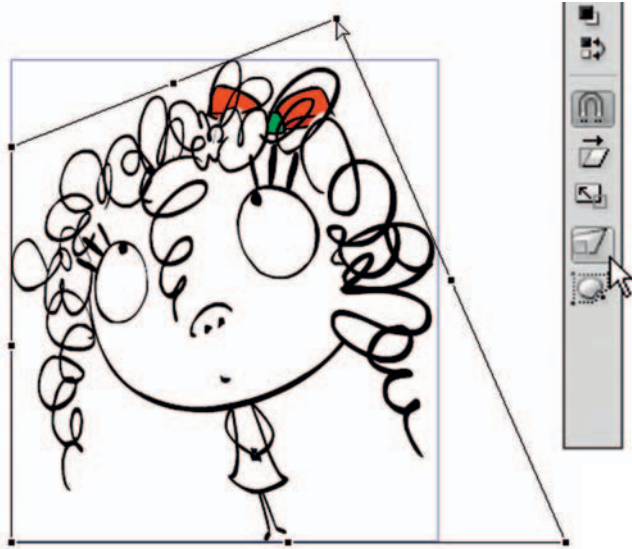
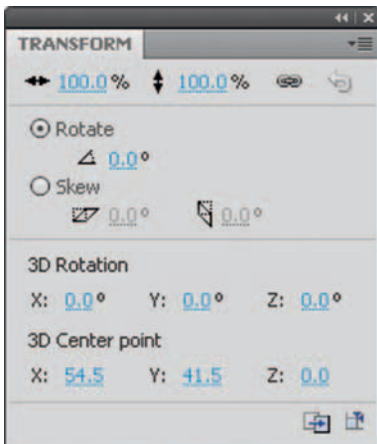
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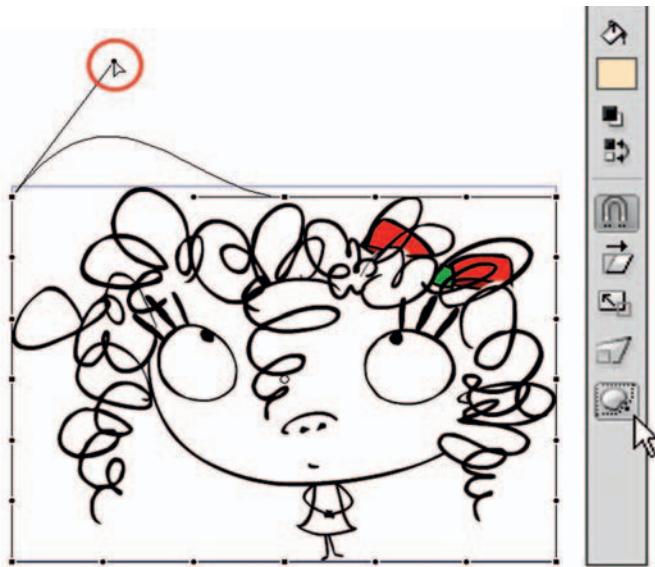
The Envelope tool



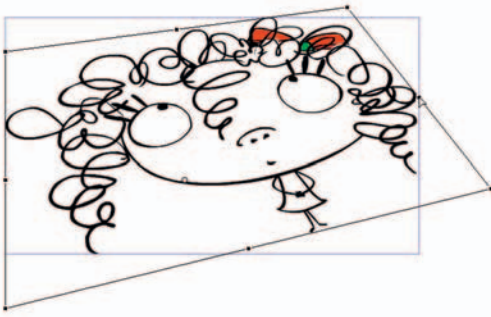
WHEN USING THE free transform tool with raw vector objects, the Distort and Envelope subselection tools become available. This is where you can really have some fun warping and deforming shapes as if they were clay. Think of how your reflection looks in a fun house mirror and you'll start to get an idea as to what these tools are useful for. If you need to be precise with how your images are scaled, rotated or skewed, use the Transform panel to type in your values for the respective transformation.



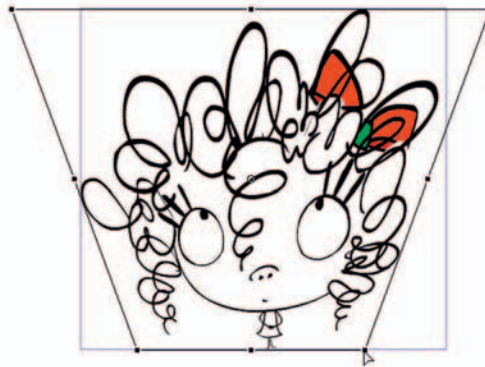
1 Enter Free Transform mode by selecting the Free Transform tool in the toolbox or by pressing the keyboard shortcut **C**. Select the Distort subselection tool at the bottom of the toolbox. Click and drag any of the corner handles to distort your shape.



4 The Envelope modifier is great for warping and distorting shape. When you select the Envelope subselection tool, you will notice multiple handles attached to the bounding box. Manipulating these handles will affect the shape contained within. Click and drag a corner handle to start warping your shape.



2 The Distort tool is useful for manipulating the perspective of a shape by clicking and dragging the corner handles.



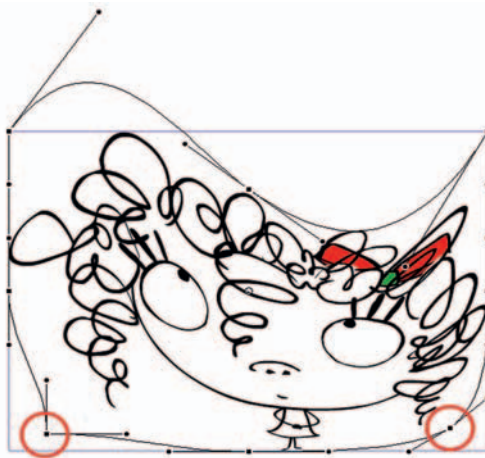
3 Hold down the **Shift** key while dragging a corner handle to constrain the adjoining corner an equal distance and in the opposite direction from each other. Think of it as tapering your shape.

HOT TIP

Holding down **Ctrl** (or **alt**) when dragging a corner point will lock the tangent handles to their current position. Holding down the same keys while dragging one of the side handles will constrain that entire side and all its points.



5 Drag any of the eight tangent handles to warp your shape in almost any direction. These tangent handles are located at each corner and along both horizontal and vertical sides as well.



6 You can move any of the points to a new location to further warp your shape. But be careful; once you click outside of the selected shape, the transformation will end. You can select it again and continue to warp and distort it, but the previous point and tangent positions will be lost.

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Warping



THE ENVELOPE TOOL can help shave some time off your production schedule.

In this case, the Envelope tool was used to deform the head of the Evil Mime character to represent the effect of being hit by a self-imposed uppercut. Sure, the entire head could have been drawn, but not often do we have the luxury of time to start from scratch when a deadline is looming. It was much easier to start with the head already drawn and warp it to suit our needs.



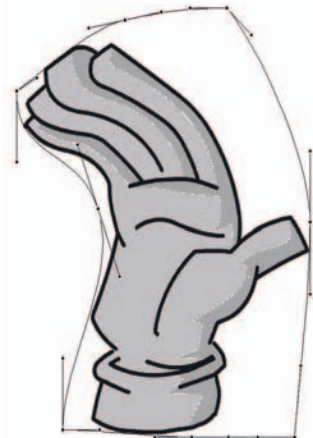
1 Duplicate the artwork of the head by creating a new keyframe in the head symbol. Select the entire head and the Free Transform tool , then select the Envelope subselection tool.



2 Using the Envelope tool, you can move the handles to deform the relative area of the head.



6 Here's the hand drawn in Flash using the Line tool. You may find the need for a variation of this same illustration and need to make it quickly.



7 Using the Envelope tool allows you to quickly distort the drawing into a different shape.



3 Continue to push and pull the Envelope's anchor points and control handles to deform the shape to your liking.



4 You can start the envelope process over by deselecting the artwork and selecting the Envelope tool again. This will reset the anchors and handles, which will allow you to further distort your image.



5 Don't be afraid to manually go back into the artwork and adjust your linework using the Selection tool. Don't rely purely on the tools; often it's your own eye that is the best tool.



8 Here's the foot in its default state. Depending on your animation, you may need several feet in different shapes.



9 Once again, the Envelope tool gets the job done, quickly and efficiently.



10 Don't rely completely on the tools. In most cases, they can only go so far. You may want to further refine the details of your image manually.



HOT TIP

Don't rely on the Envelope tool for everything. In a situation like this, where a complex shape is being warped, you will probably find that upon ending your transformation, you will need to refine your shapes manually by using the Selection tool or any of the drawing tools.

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