

# Kaleidoscope Kreator<sup>TM</sup> 2.0

## **Users Guide**

Revision 1.0

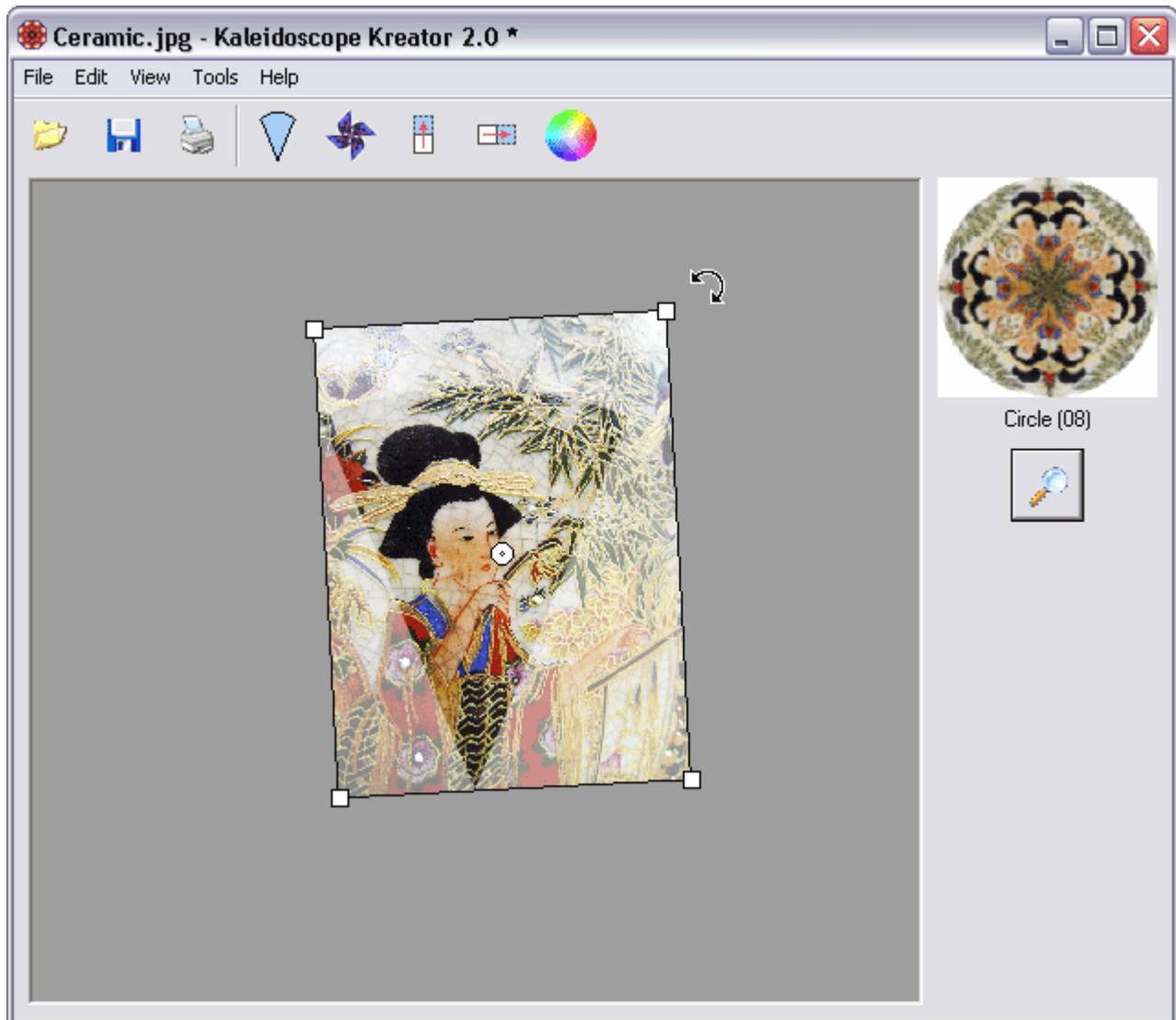
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# 1. Overview

## 1.1 What is Kaleidoscope Kreator?

Very simply, Kaleidoscope Kreator makes kaleidoscopes from your digital photos and images. It allows you to view your entire photo while choosing exactly what portion of the image will be used in the kaleidoscope. This makes it ideal for creating kaleidoscopes of people or other distinct subjects for use in quilts, traditional and digital scrapbooks, cards, and many other craft projects.





## 1.2 Creative Uses for Kaleidoscope Kreator

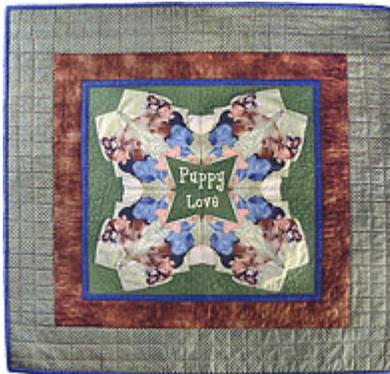
Kaleidoscopes can be made from any image in digital format including photos and artwork (digital images can be obtained from scanners or digital cameras or created using other graphics/painting computer applications). Here are just a few examples of the many things you can do with Kaleidoscope Kreator:

### Quilting



Kaleidoscope quilts are beautiful to look at but time consuming to make – until now. With Kaleidoscope Kreator, kaleidoscope quilts are as easy as 1-2-3! Simply print your kaleidoscopes on inkjet fabric to include in traditional quilt patterns or create your own unique designs.

Shape: *Square (08)*



Kaleidoscope Kreator's Poster Printing feature makes it possible to create large kaleidoscope designs for quilts with the click of a button. Simply sew the tiles together to create your own unique quilt tops. Think BIG! (Note: The lettering in this quilt was added using another image editing program. You could just as easily appliqué or embroider the letters after sewing the tiles together.)

Shape: *Square (08)*

### Traditional Scrapbooking



Use Kaleidoscope Kreator to create kaleidoscopes and matching embellishments for your traditional scrapbooks. This kaleidoscope was printed on a standard 8.5"x11" photo printer, then cut out and positioned on the 12"x12" scrapbook page leaving room to scrapbook around it. Kaleidoscope Kreator was also used to make color-coordinated embellishments from the flowers in the background of the main photo.

Shape: *Scallop (08)*

## Digital Scrapbooking



Use Kaleidoscope Kreator to save a kaleidoscope to a file, then open in another image editing application to complete the digital layout. In this case, a photo was added in the center and borders were added around each element. The background was designed to follow the shape of the kaleidoscope.

Shape: *Star (10)*

## Cards & Other Paper Crafts



It's easy to make beautiful cards by simply printing a kaleidoscope and attaching it to a piece of cardstock. But don't let your imagination stop there. The "flowers" on this card are kaleidoscopes that were created with Kaleidoscope Kreator, then printed using the Print Multiple custom printing option to get different sizes. The kaleidoscopes were then cut out, folded to create 3-dimensional flowers and nested one inside another before attaching to the card.

Shape: *Lotus (08)*



Creating your own teabag tiles is easy with Kaleidoscope Kreator. The Print Multiple feature makes it possible to print a full sheet of teabag tiles with just a few clicks of the mouse.

Shape: *Square (08)*

## Fashion



Incorporate eye-catching kaleidoscope designs into your wardrobe. Either print on fabric to include in a sewing project or appliqué onto pre-made clothing. (Note: The addition of the photo in the center of the kaleidoscope was accomplished with another image editing program. You could just as easily appliqué a photo in the center of a kaleidoscope.)

Shape: *Sun Rays (08)*

## Accessories



Personalize your handbags, backpacks, tennis shoes, etc. by printing kaleidoscopes on sticky-back inkjet fabric and adhering to your favorite accessories.

Shape: *Scallop (08)*

## Sun Catchers



Print kaleidoscopes on transparencies to make stunning sun catchers! Simply cut out and adhere to a metal hoop or sandwich between glass. You can even combine two different kaleidoscopes for more complex designs. Wrap with ribbon or wire to finish.

Shape: *Circle (16)*

As you can see, the creative possibilities are truly endless with Kaleidoscope Kreator! Let your imagination run wild and most of all - have fun!

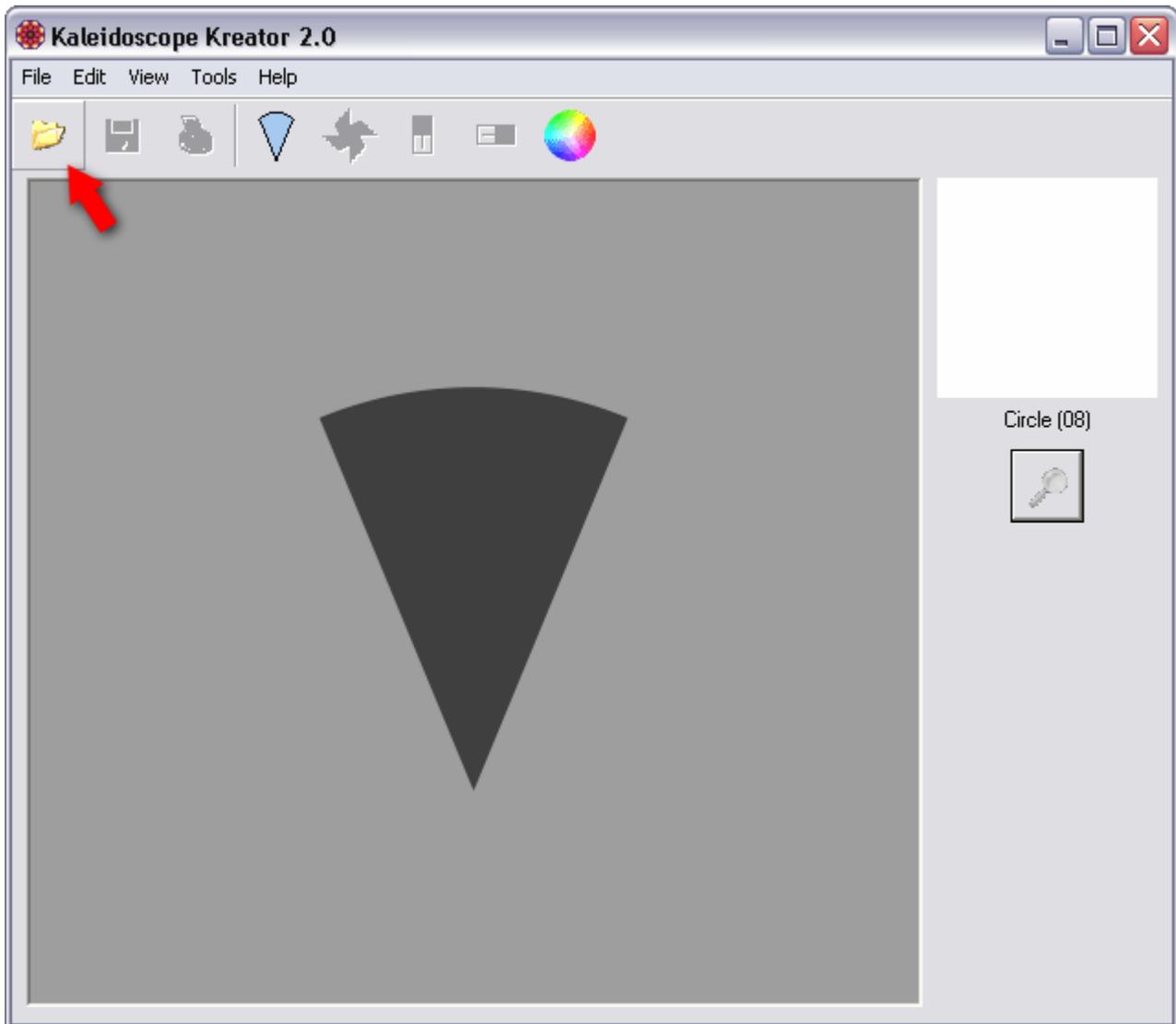
## 2. Quick Start Guide

### 2.1 Quick Start: 4 Simple Steps

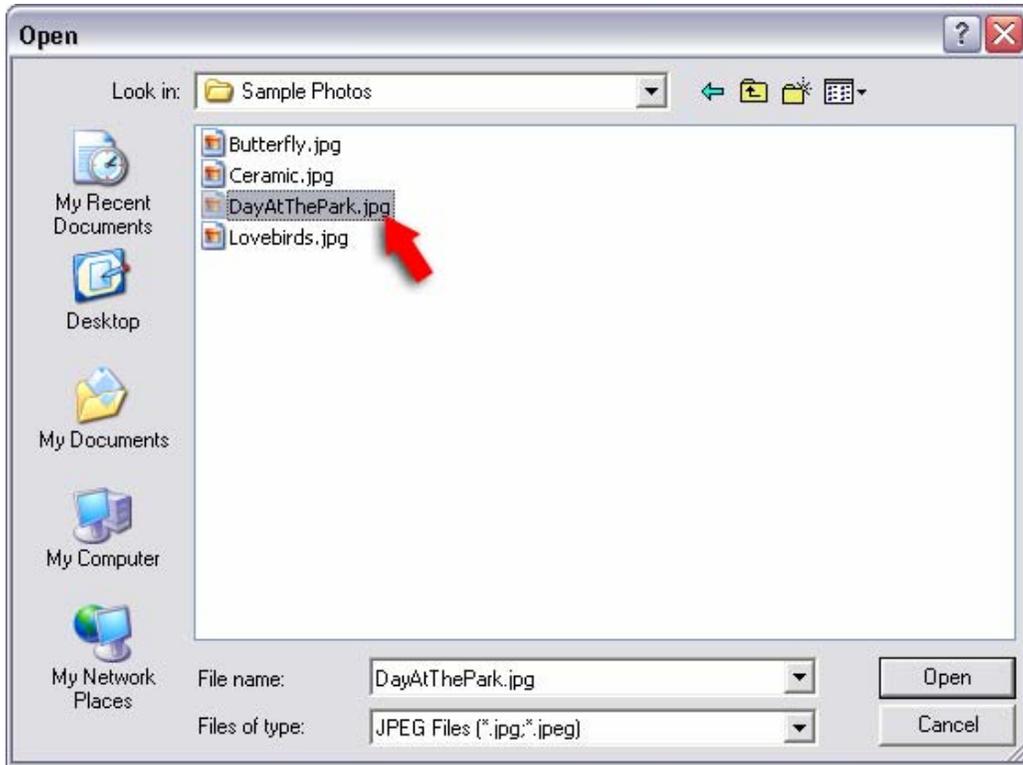
It's easy to create kaleidoscopes with Kaleidoscope Kreator! Follow these four simple steps to get started.

#### 2.1.1 Step 1 - Open Image

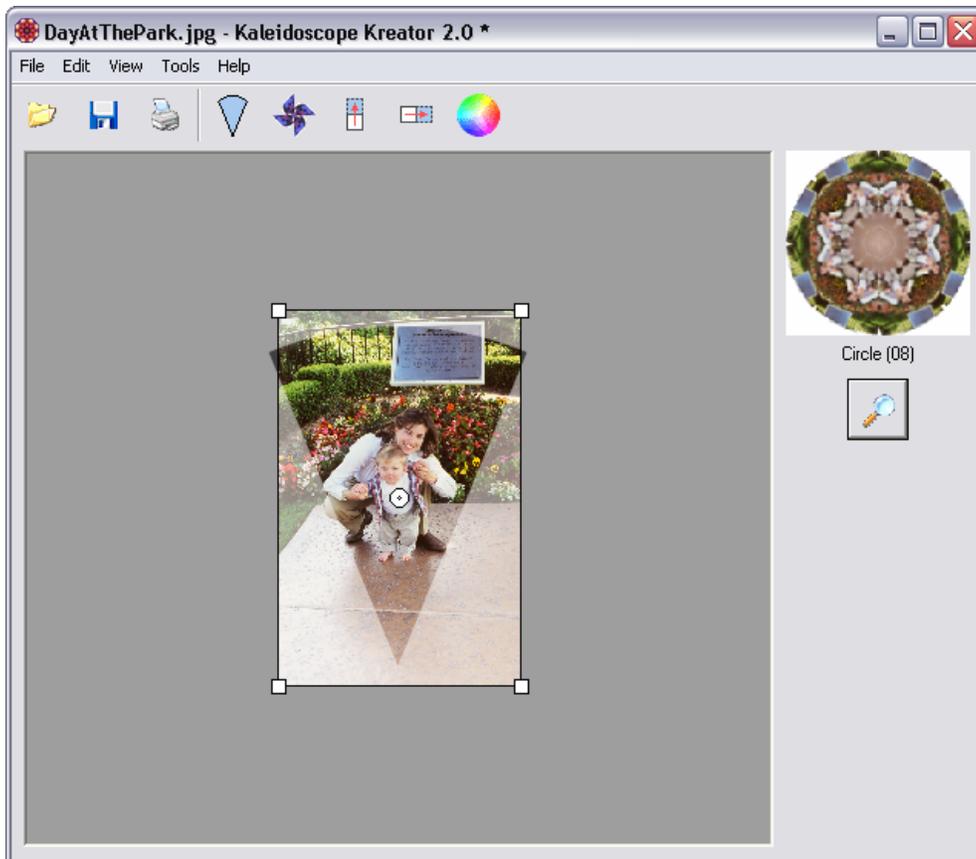
The first step in creating your kaleidoscope is to open an image. Click on the  **Open Image** button in the toolbar:



After you click on the button, you will see the standard Windows® **Open** dialog box. Navigate to the folder containing your photo or image file and select it:



After opening the file, the workspace will look something like this:



## 2.1.2 Step 2 - Position Image

Using your mouse, position your image beneath the wedge-shaped segment template. The mouse action changes as you move the mouse over or next to the image. The shape of the mouse pointer changes to indicate which action will occur when you click the mouse button.

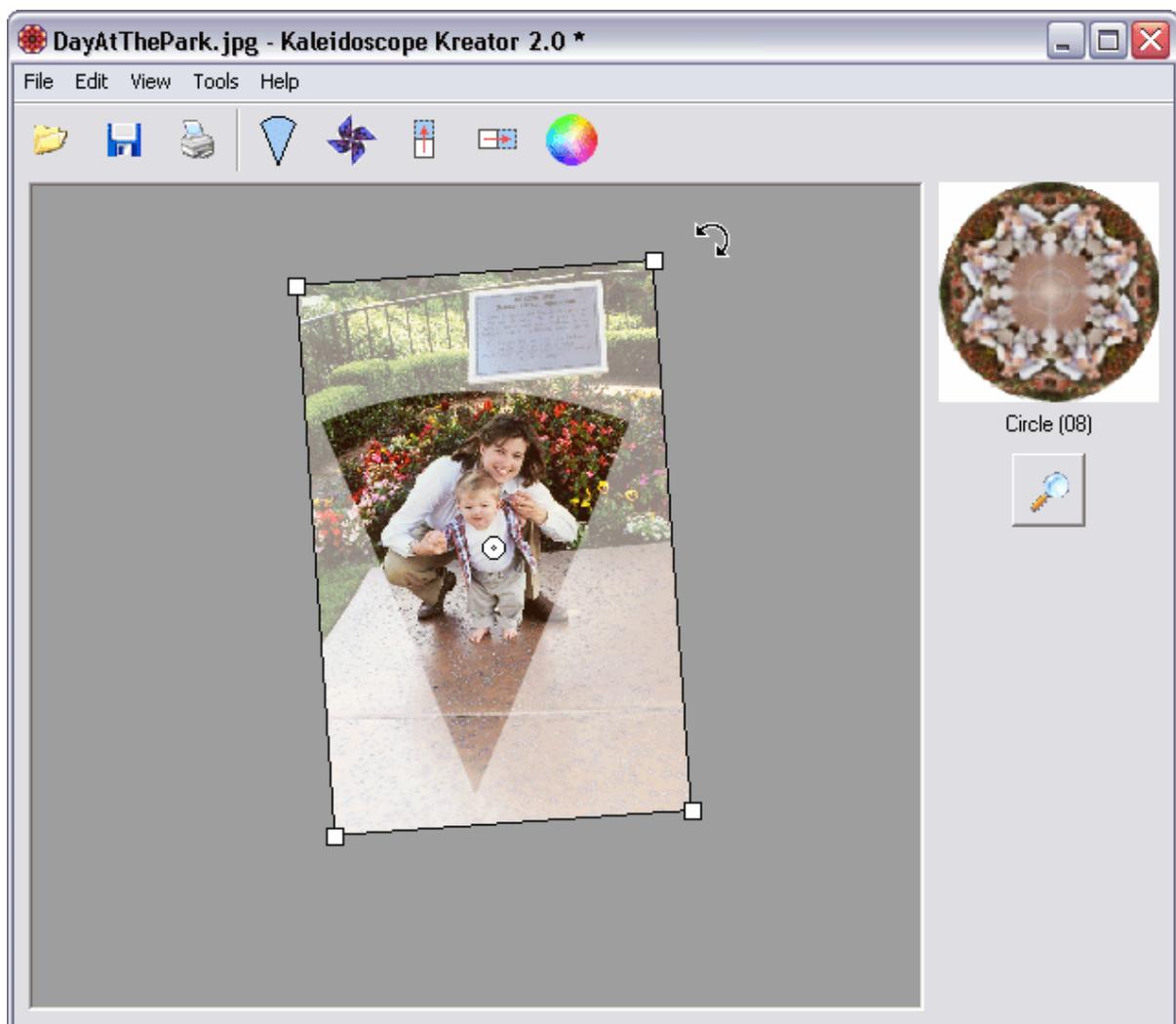
 To resize the image, move the mouse over any of the corners, then click and drag.

 To rotate the image, click and drag the mouse outside the image boundary.

 To move the image around the workspace staging area, position the mouse over the image, then click and drag.

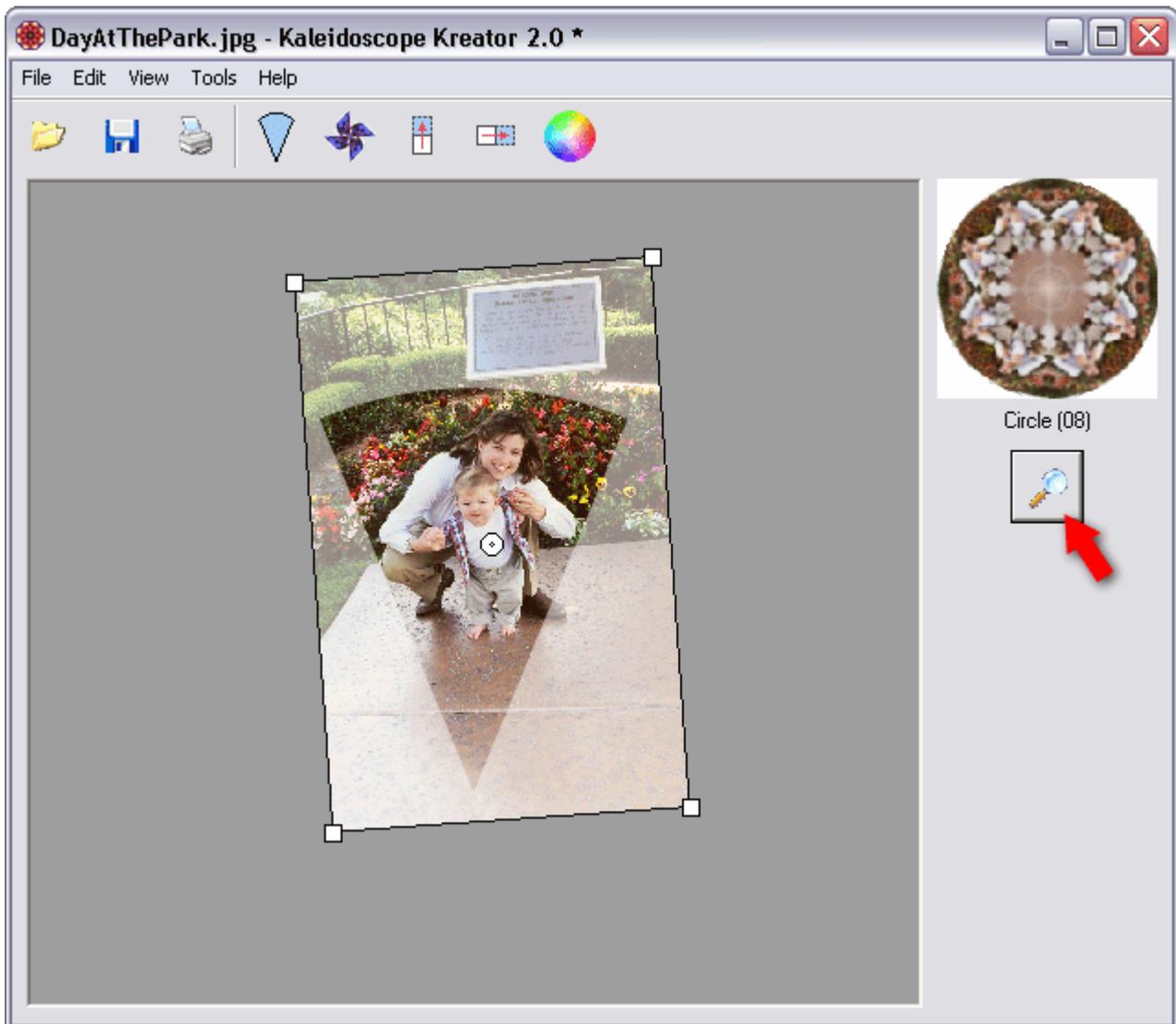
The goal is to position the image so that the portion you want to use for the kaleidoscope is inside the segment template. Use the thumbnail on the upper right as a quick preview of how the positioning will affect your kaleidoscope.

In the example below, the image has been enlarged, moved and rotated to better position the subjects within the segment template:



### 2.1.3 Step 3 - Preview Kaleidoscope

Click on the  **Preview** button to see what your kaleidoscope will look like.

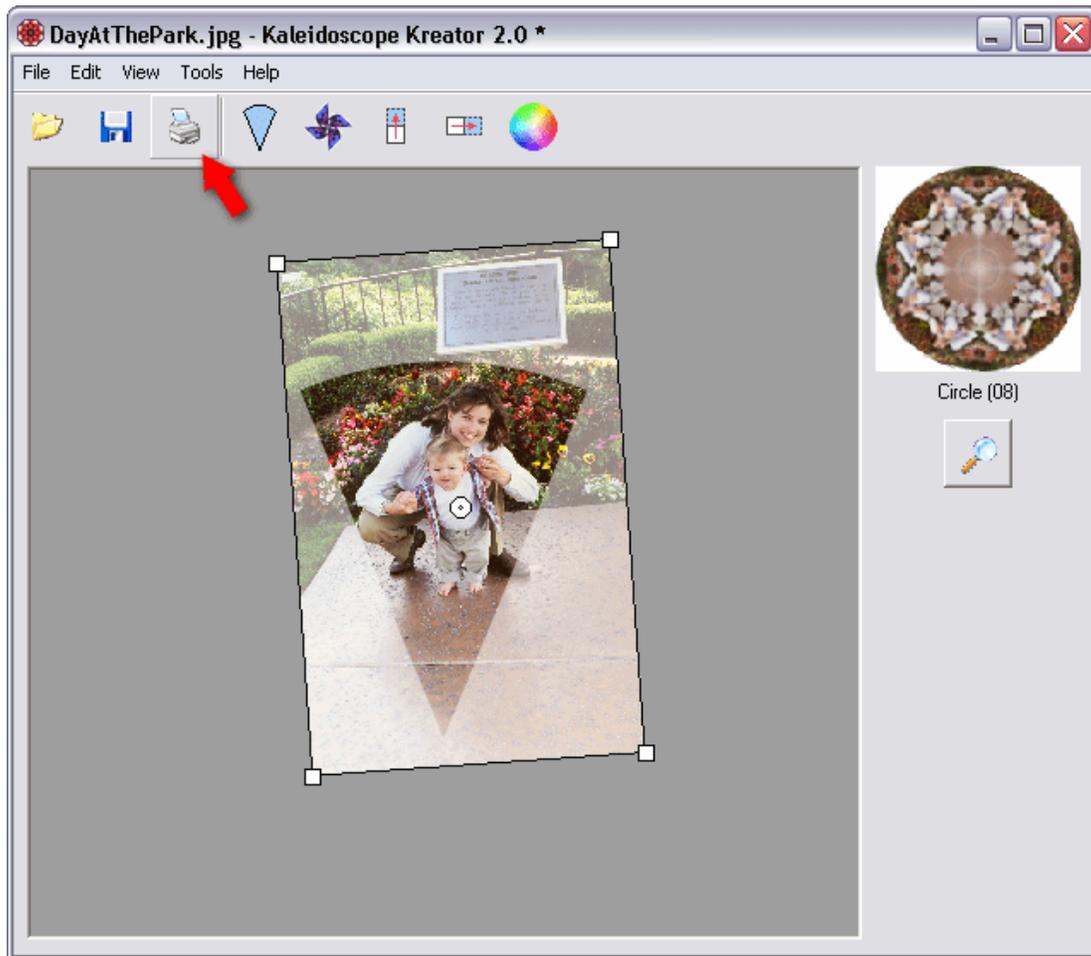


To continue, click **OK** to close the Preview window.



## 2.1.4 Step 4 - Print Kaleidoscope

Print your kaleidoscope directly from Kaleidoscope Kreator using the  **Print Kaleidoscope** toolbar button.



Kaleidoscope Kreator will ask you to specify the size of the kaleidoscope before printing. The default size is 6 inches. Click **OK** to proceed to the standard Windows® **Print** dialog box.

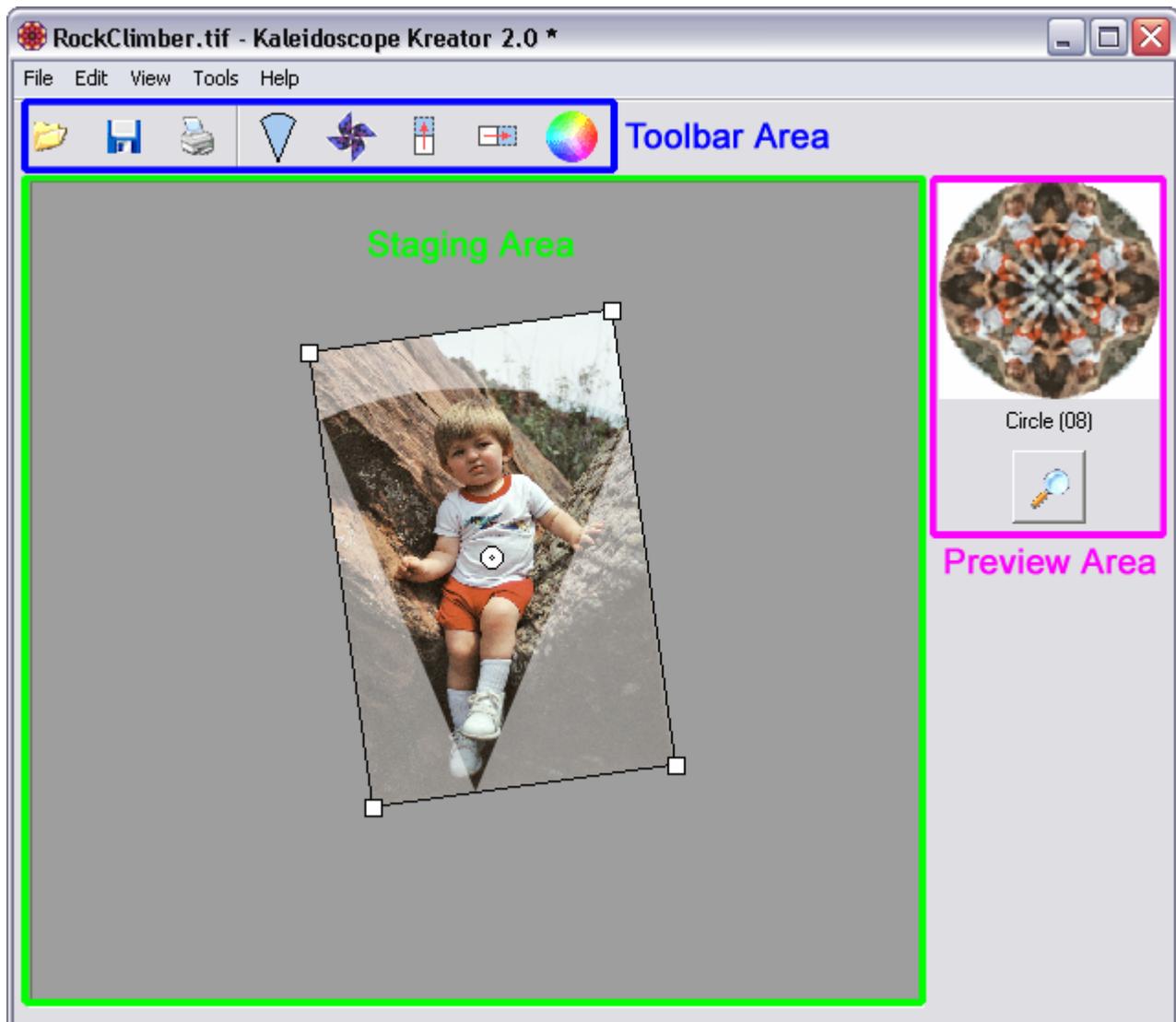


It's that easy! To learn more about the many different features of Kaleidoscope Kreator, see the *Detailed Users Guide* below.

## 3. Detailed Users Guide

### 3.1 Workspace Overview

The Kaleidoscope Kreator workspace is divided into the following areas:



#### A. Staging Area

The Staging Area is where all of the “action” takes place. When you open an image it's displayed here, along with the segment template. By arranging and adjusting your photo beneath this template, you determine which portion of the image will be used in the kaleidoscope. The shape of the segment template corresponds to the kaleidoscope shape you've selected.

#### B. Preview Area

The Preview Area contains a small thumbnail view of the kaleidoscope that is constantly updated as the photo is adjusted in the staging area. The current kaleidoscope shape is listed directly beneath the thumbnail, and below that is the Preview Button. Clicking on the Preview button will generate a full-screen version of the kaleidoscope.

## C. Toolbar Area

The buttons in the Toolbar Area are used to perform the following actions:



Open a photo or image



Save the kaleidoscope to a file



Print the kaleidoscope



Choose a different shape for the kaleidoscope



Toggle Pinwheel Mode (controls the "mirroring" that occurs in normal kaleidoscopes)



Flip the image vertically



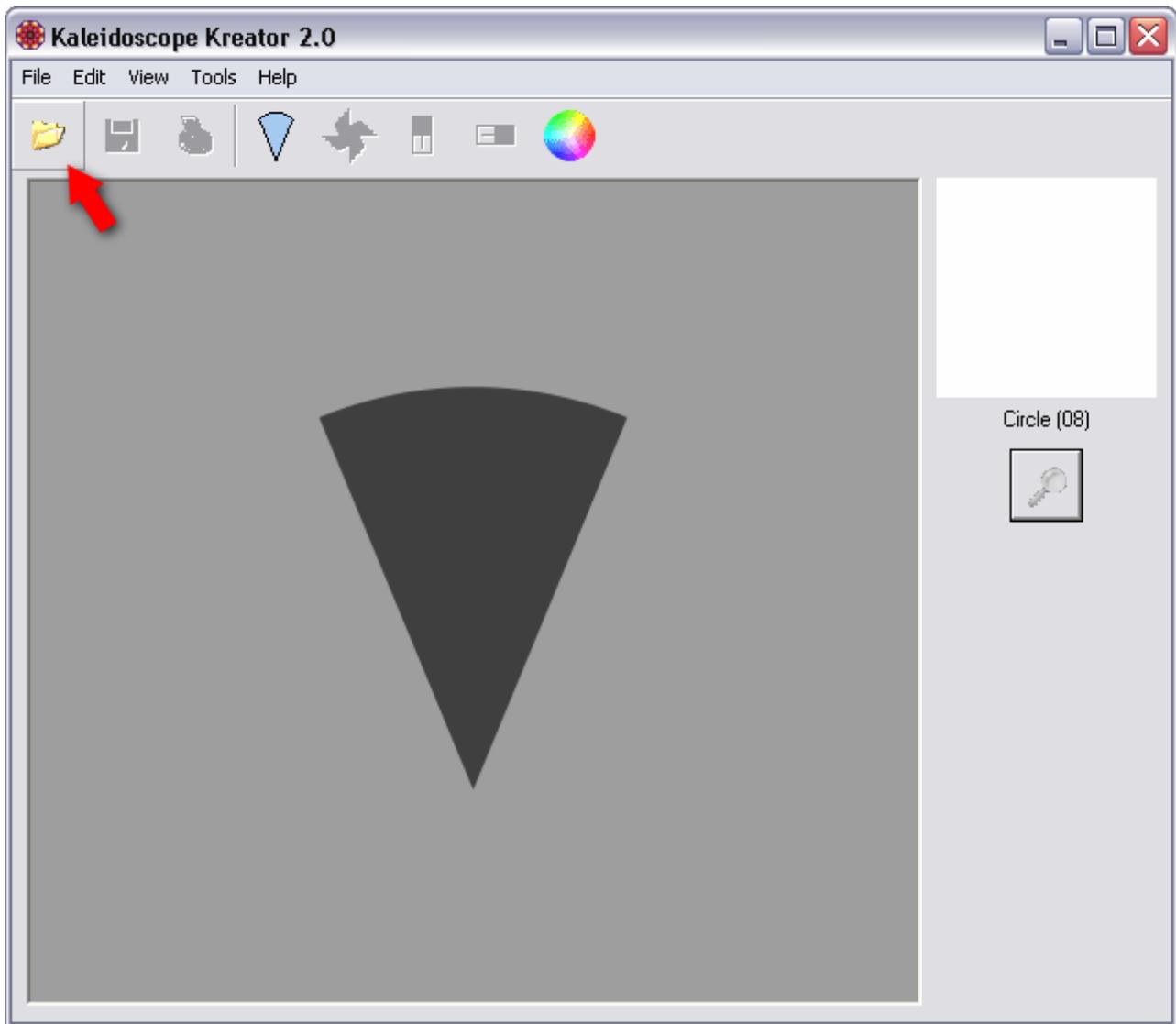
Flip the image horizontally



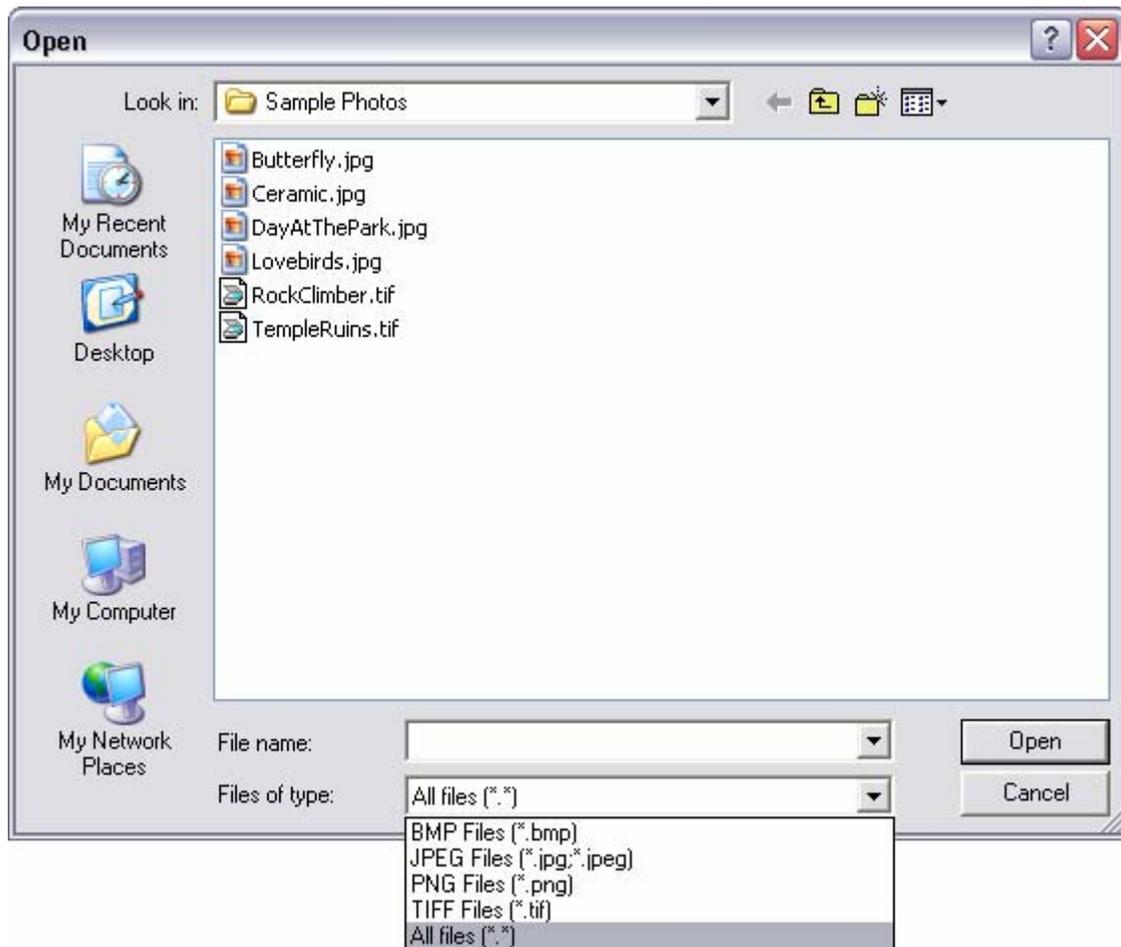
Choose a background color for the kaleidoscope

## 3.2 Open Image

To open an image, either choose the **File > Open Image...** menu item or click on the  **Open Image** toolbar button.

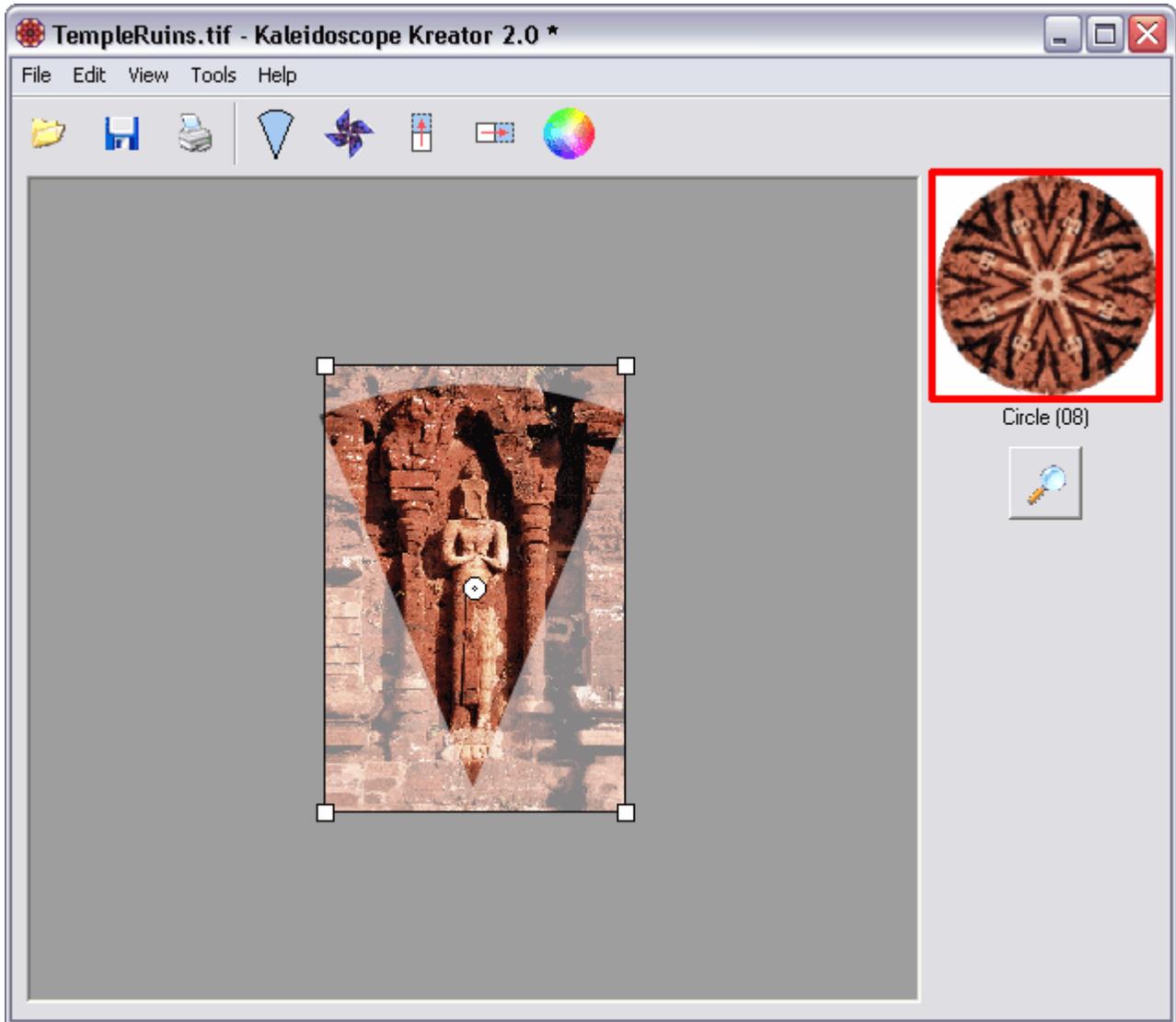


Use the standard Windows® **Open** dialog box to browse for the file you want to open; Kaleidoscope Kreator will remember the last folder that you opened. Kaleidoscope Kreator supports BMP, JPEG, PNG and non-compressed TIFF files; files in other formats will result in an error if you attempt to open them. (See *Supported Image File Types* in the Appendix for more information on file types.)



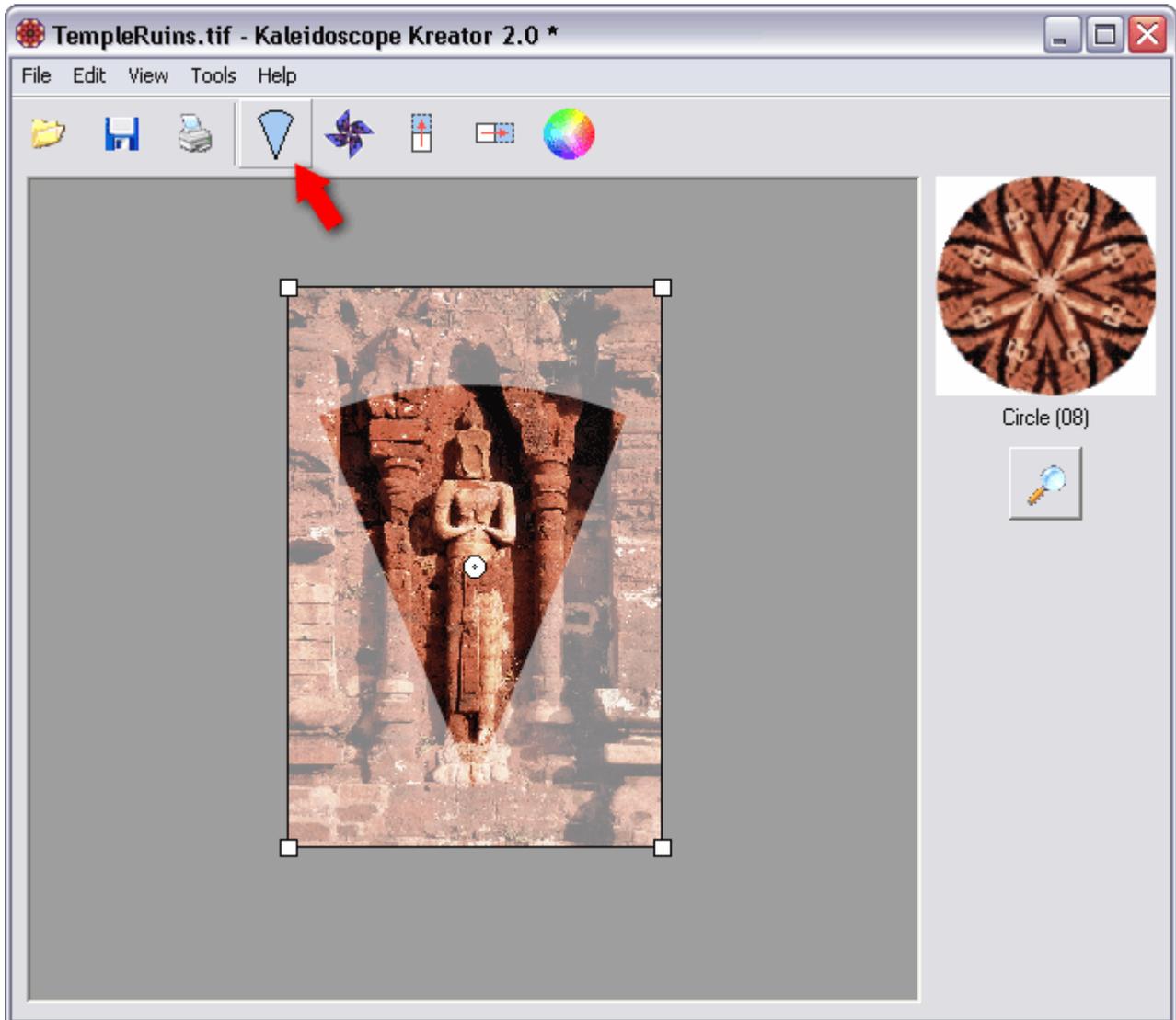
If you do not see all of your images on your hard drive, it is possible that you are viewing files of just one file type. In this case, choose "All files" to see all of your files.

As soon as an image is loaded, the Preview Thumbnail becomes active. The Preview Thumbnail is then continually updated whenever changes are made in the workspace.



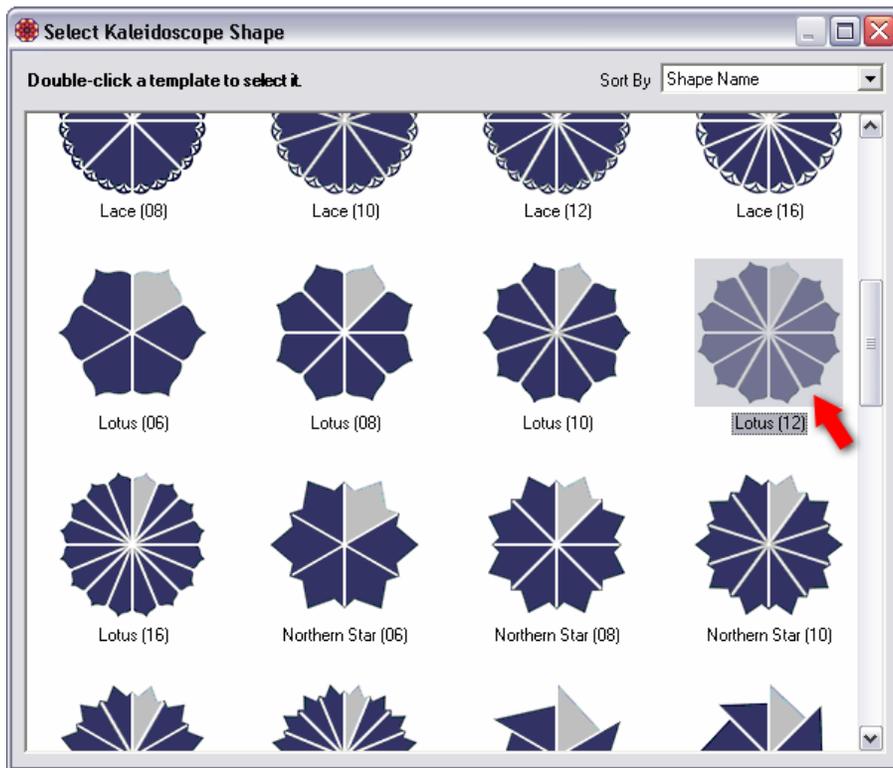
### 3.3 Choose a Shape

Once your photo or image is loaded, select the shape you want for your kaleidoscope by clicking on the  **Select Shape** toolbar button or the **Edit > Shape...** menu item.

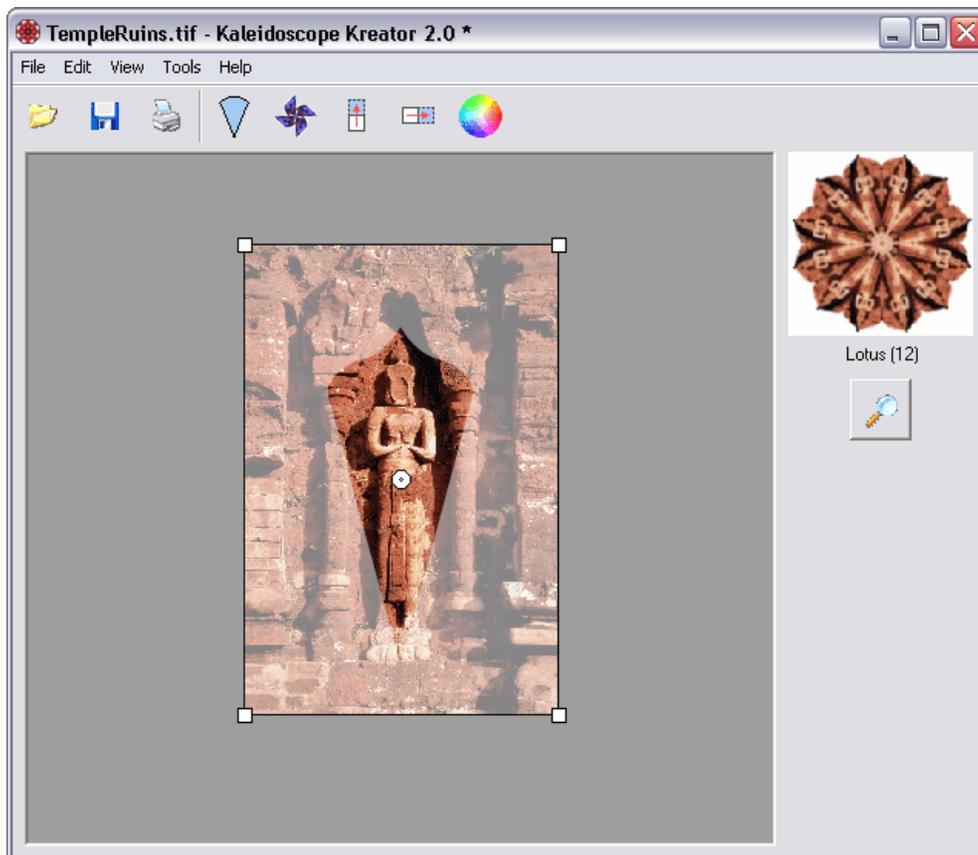


This displays the **Select Kaleidoscope Shape** dialog, which contains a table of all available shapes including their names and number of segments. (Kaleidoscope Kreator includes over 50 basic shapes.) Use the scroll bar to find the shape you want, then double-click the shape to select it.

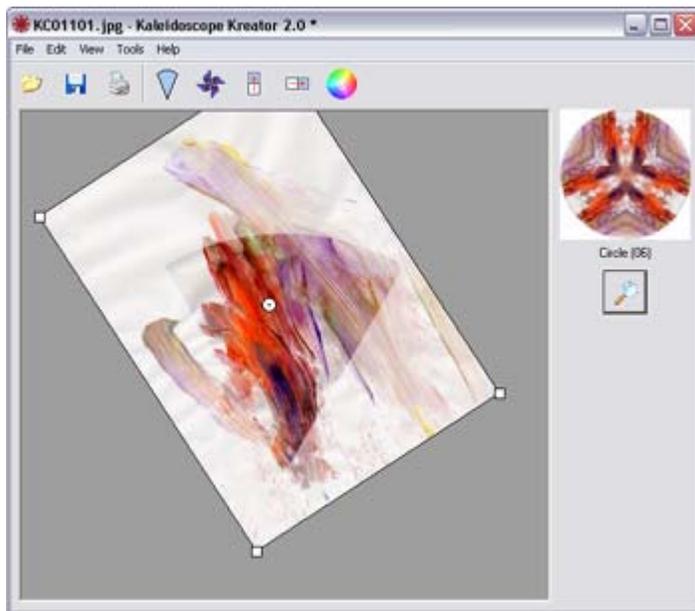
***Note:** The highlighted segment in each shape diagram indicates how the segment template in the workspace staging area will be oriented in the kaleidoscope (See Segment Orientation Tips for more details).*



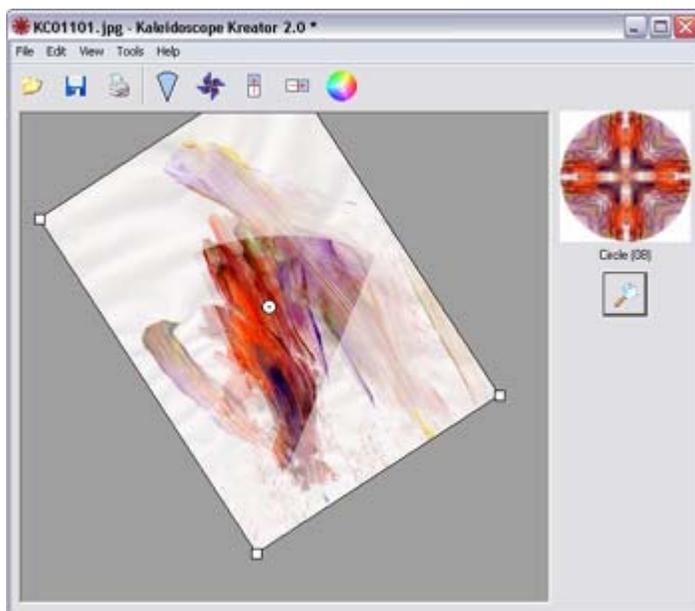
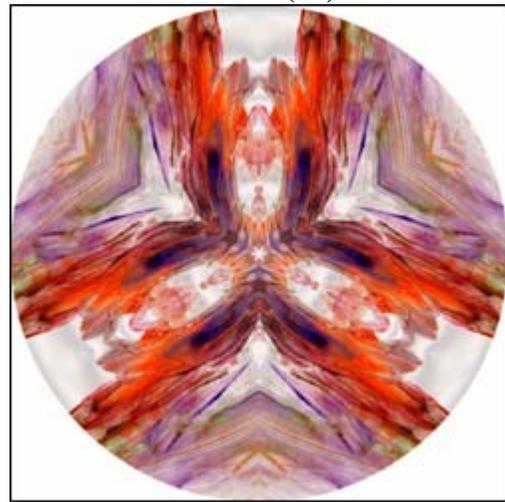
After you make your selection, the segment template and preview thumbnail in the workspace will display the new shape. In this example, the shape was changed from the 8-segment Circle to the 12-segment Lotus.



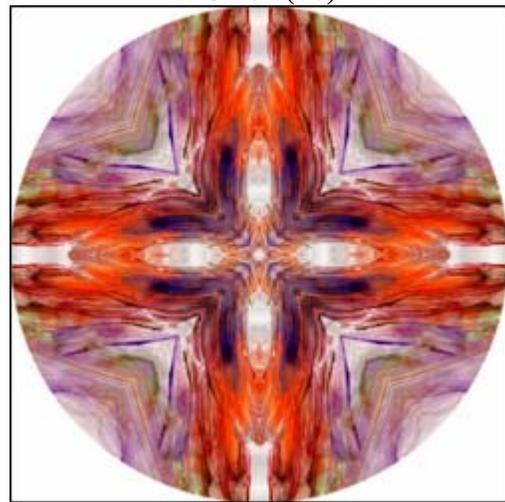
When deciding on a kaleidoscope shape, the number of segments you choose can dramatically alter the kaleidoscope's appearance. In the following sequence, the image position, size and orientation all remain the same - the only difference is in the number of segments:

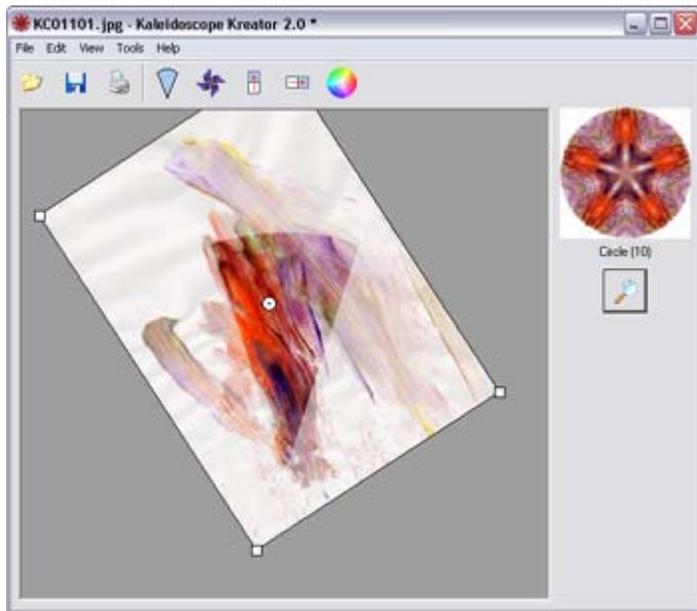


**Circle(06)**

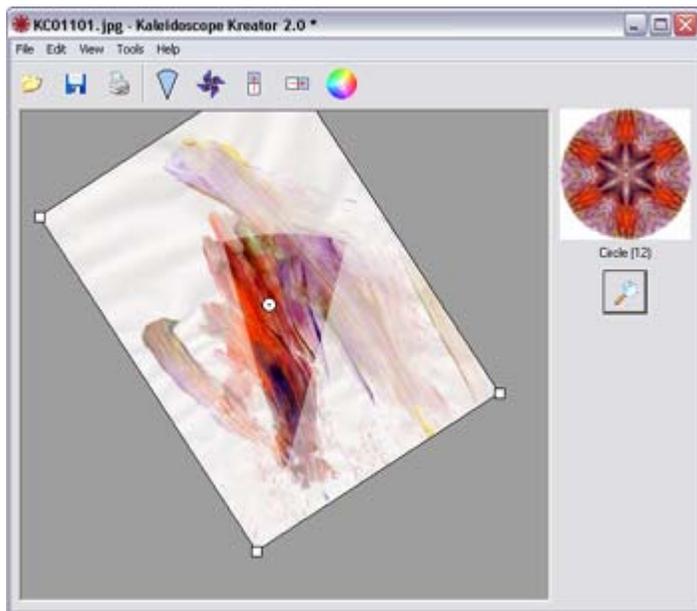


**Circle(08)**



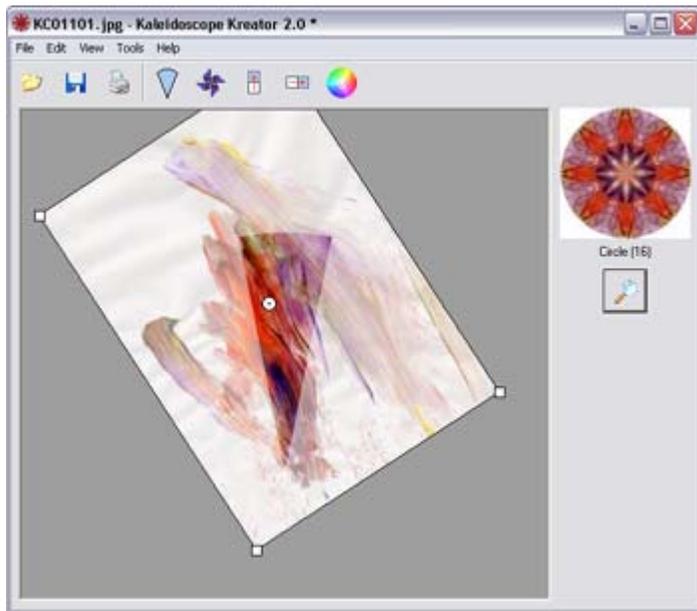


**Circle(10)**



**Circle(12)**





**Circle(16)**



### 3.4 Position the Image

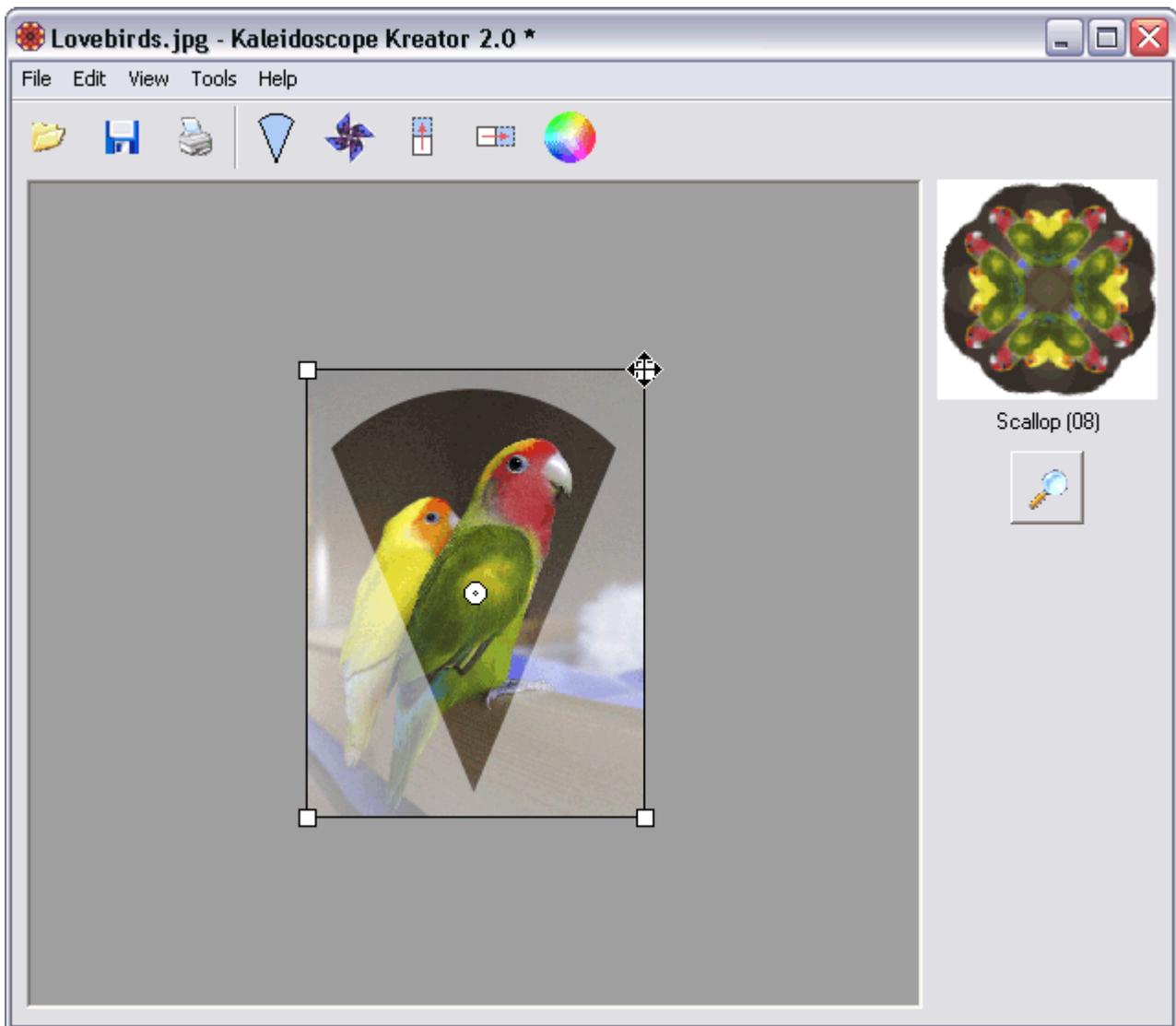
There are a number of ways you can position your image within the workspace staging area. The goal is to position the image so that the portion you want to use for the kaleidoscope is inside the segment template in the staging area.

*Note: If the image is positioned such that it does not fill the entire segment template, the empty portion will be filled with the chosen background color in the resulting kaleidoscope.*

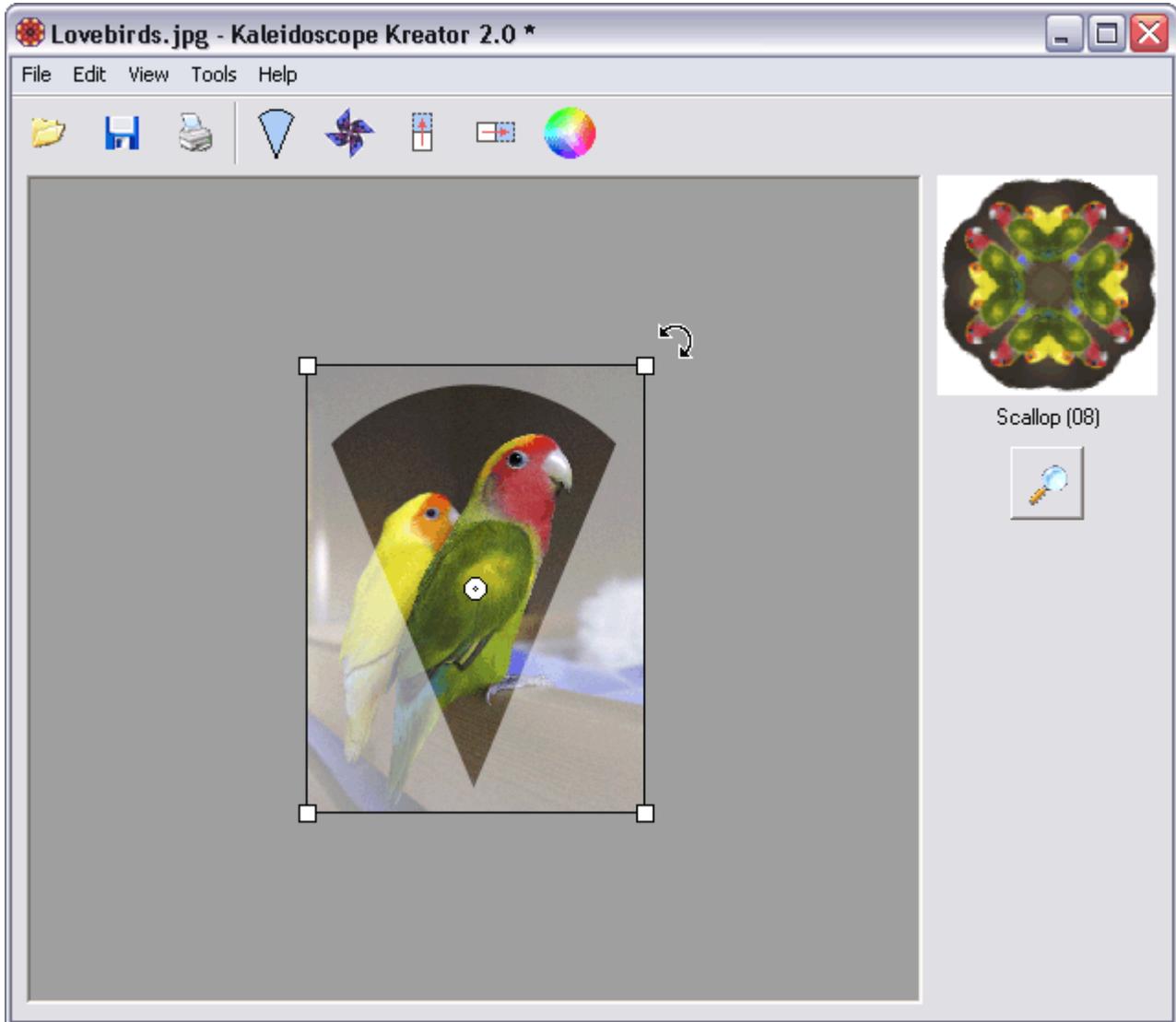
#### Using the mouse

The mouse action changes as you position the mouse over or next to the image. The shape of the mouse pointer changes to indicate which action will occur when you click the mouse button.

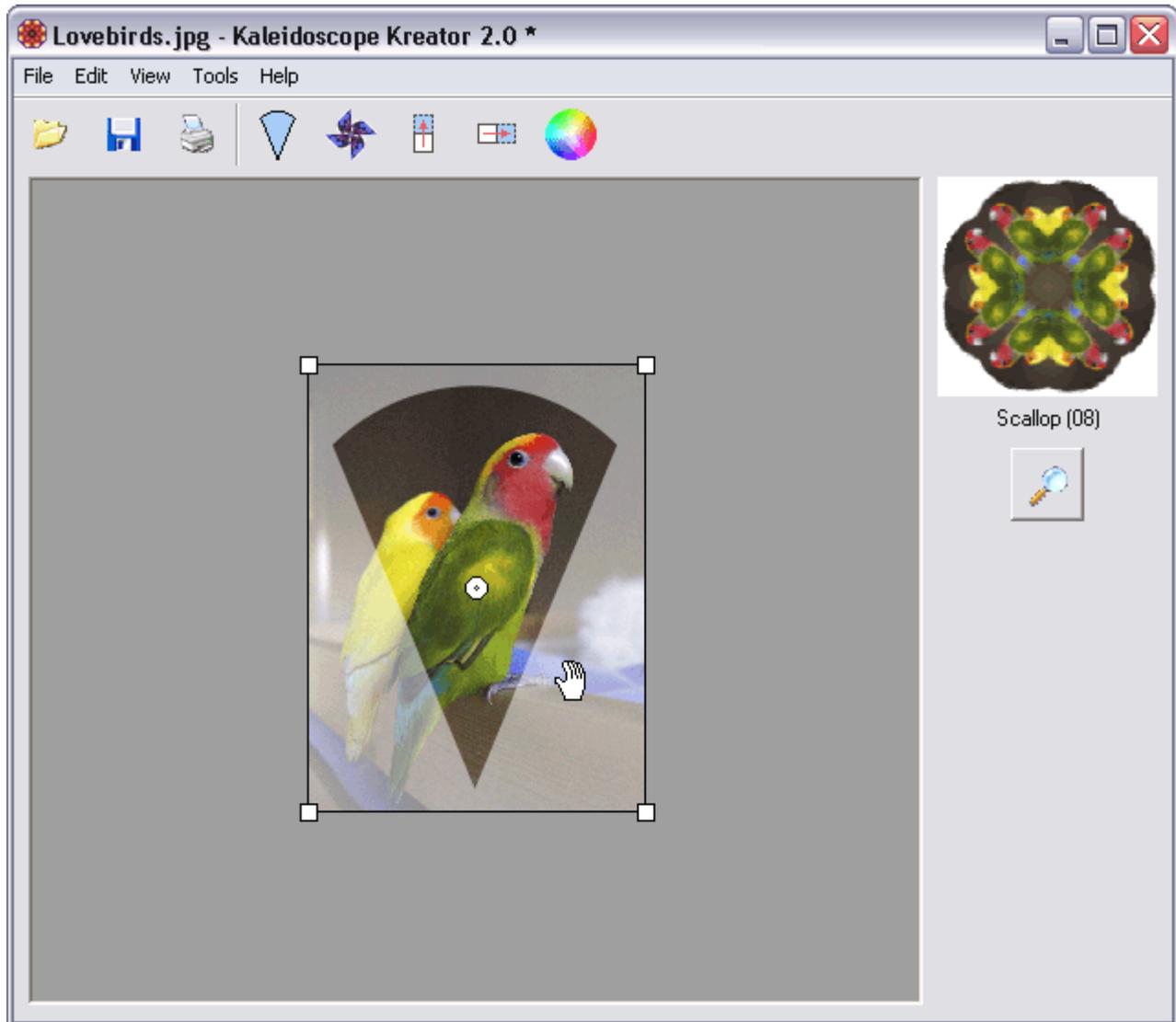
☞ To resize the image, move the mouse over any corner, then click and drag. Dragging any of the four corners has the same effect; the image is resized from the center point.



↻ To rotate the image, click and drag the mouse pointer outside the image boundary.



 To move the image around the workspace staging area, move the mouse pointer over the image, then click and drag.



### Using the keyboard

The following keystrokes will allow you to fine-tune the positioning of your image within the segment outline:

#### Resizing

+ : increases the size of the image by 0.5%

- : decreases the size of the image by 0.5%

#### Rotating

/ : rotates the image counter-clockwise by 1 degree

\* : rotates the image clockwise by 1 degree

**Repositioning** - The following numbers correspond to the arrow keys on the NumPad of most keyboards. (Make sure that NumLock is ON.)

**2** : moves the image down by 5 pixels

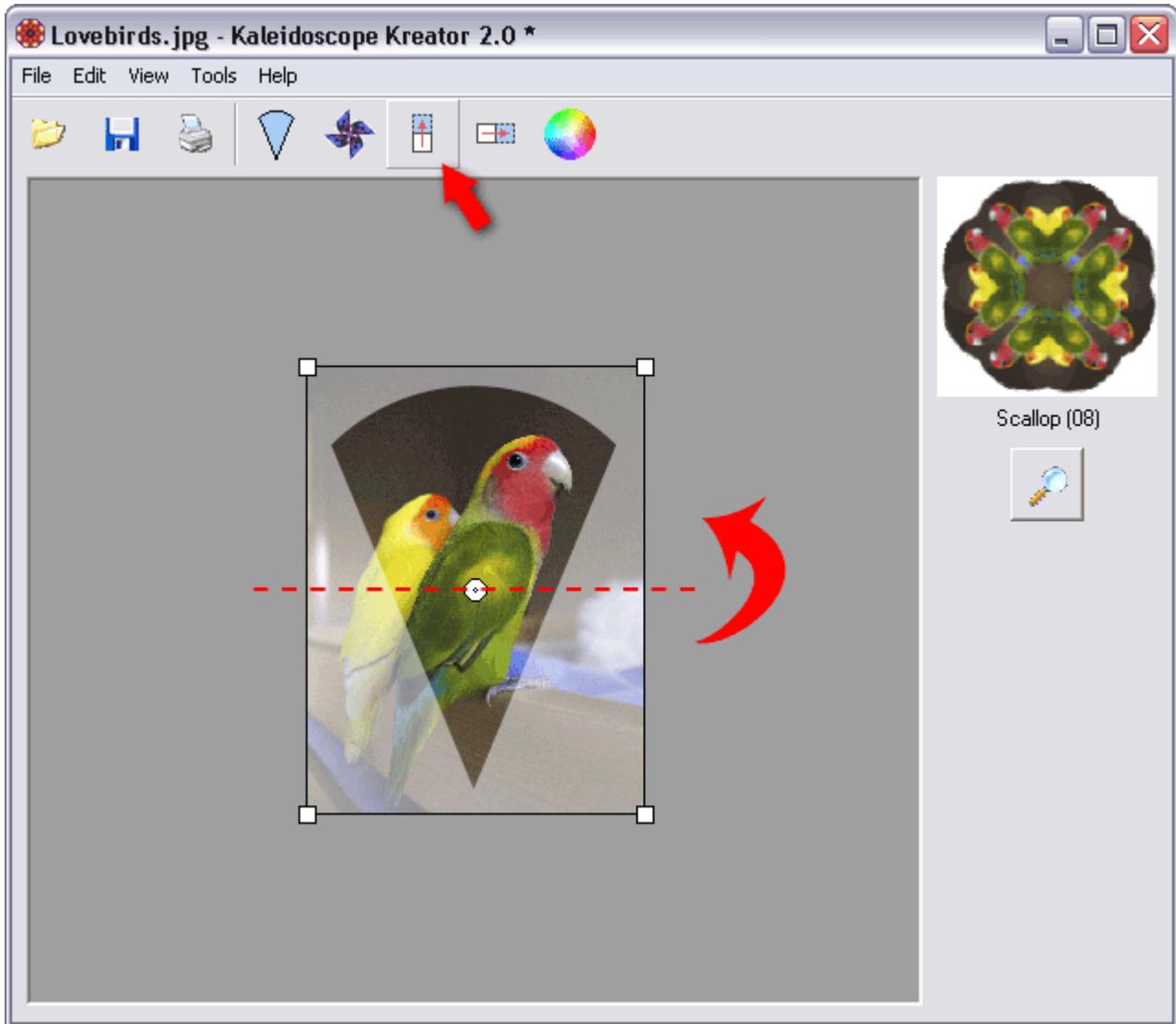
**4** : moves the image left by 5 pixels

**6** : moves the image right by 5 pixels

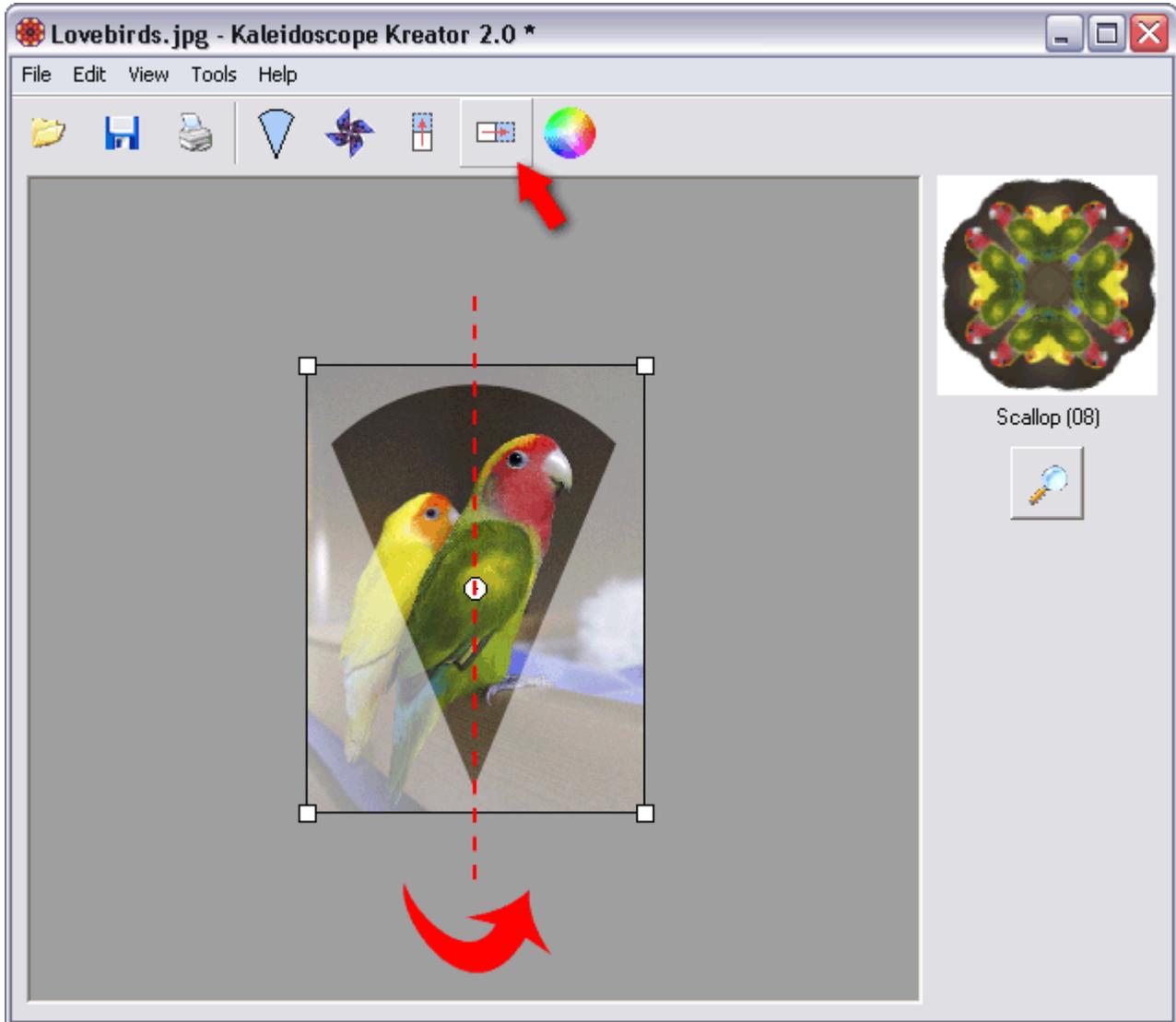
**8** : moves the image up by 5 pixels

### 3.5 Flip Image buttons

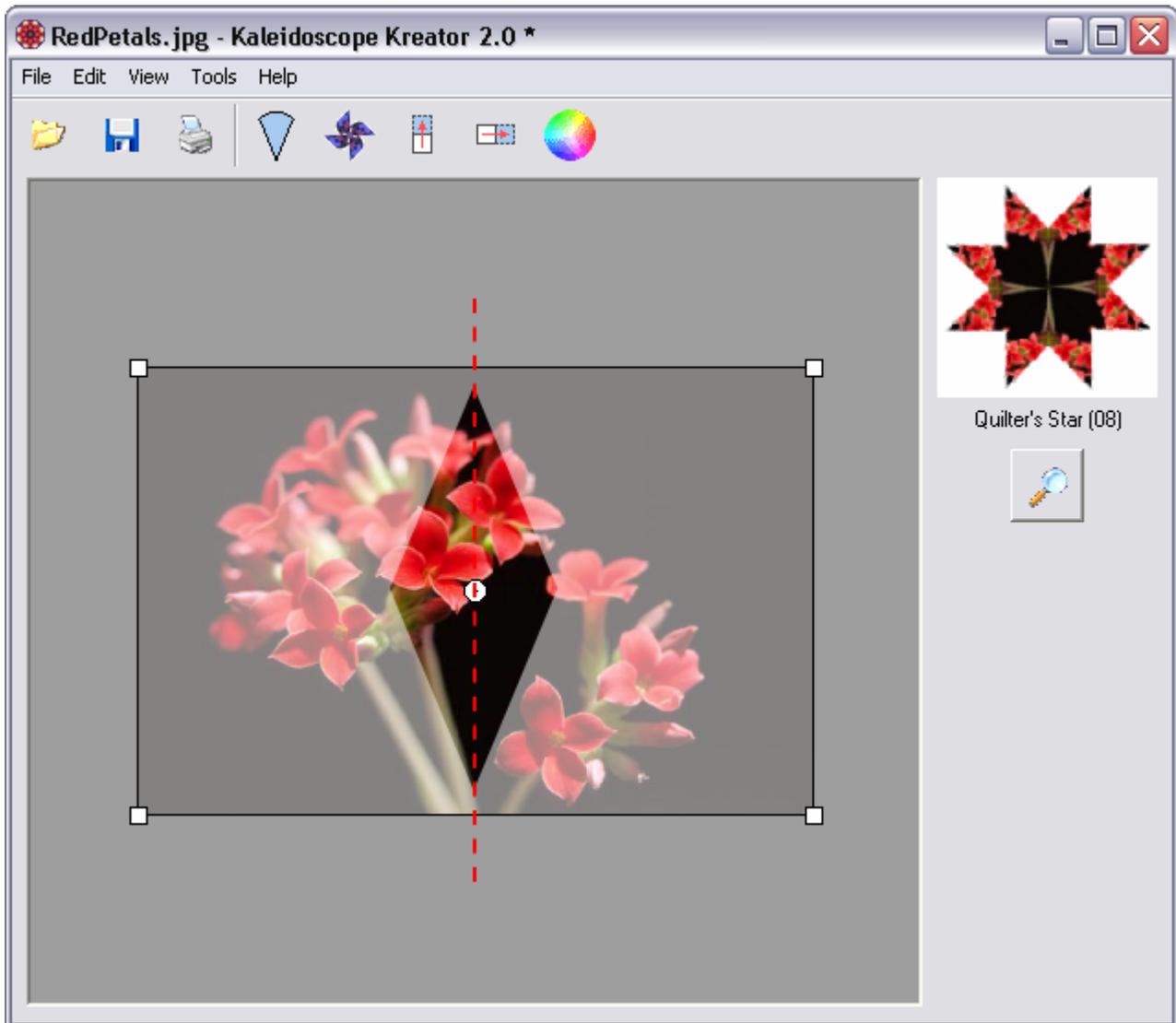
The **Flip Image** buttons are used to "flip" the image in the workspace. The  **Flip Image Vertically** button flips the image upside down:



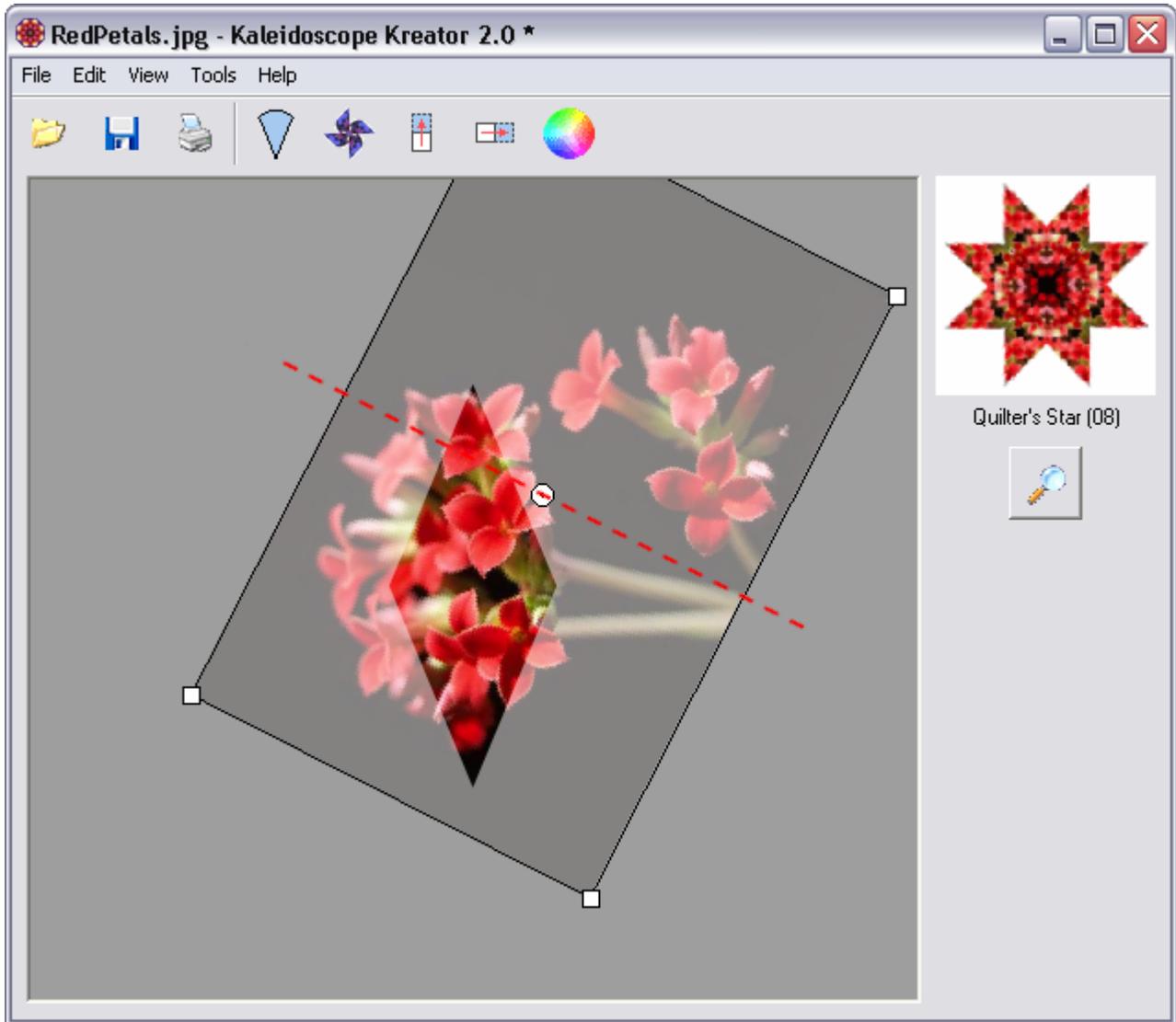
The  **Flip Image Horizontally** button flips the image left & right:



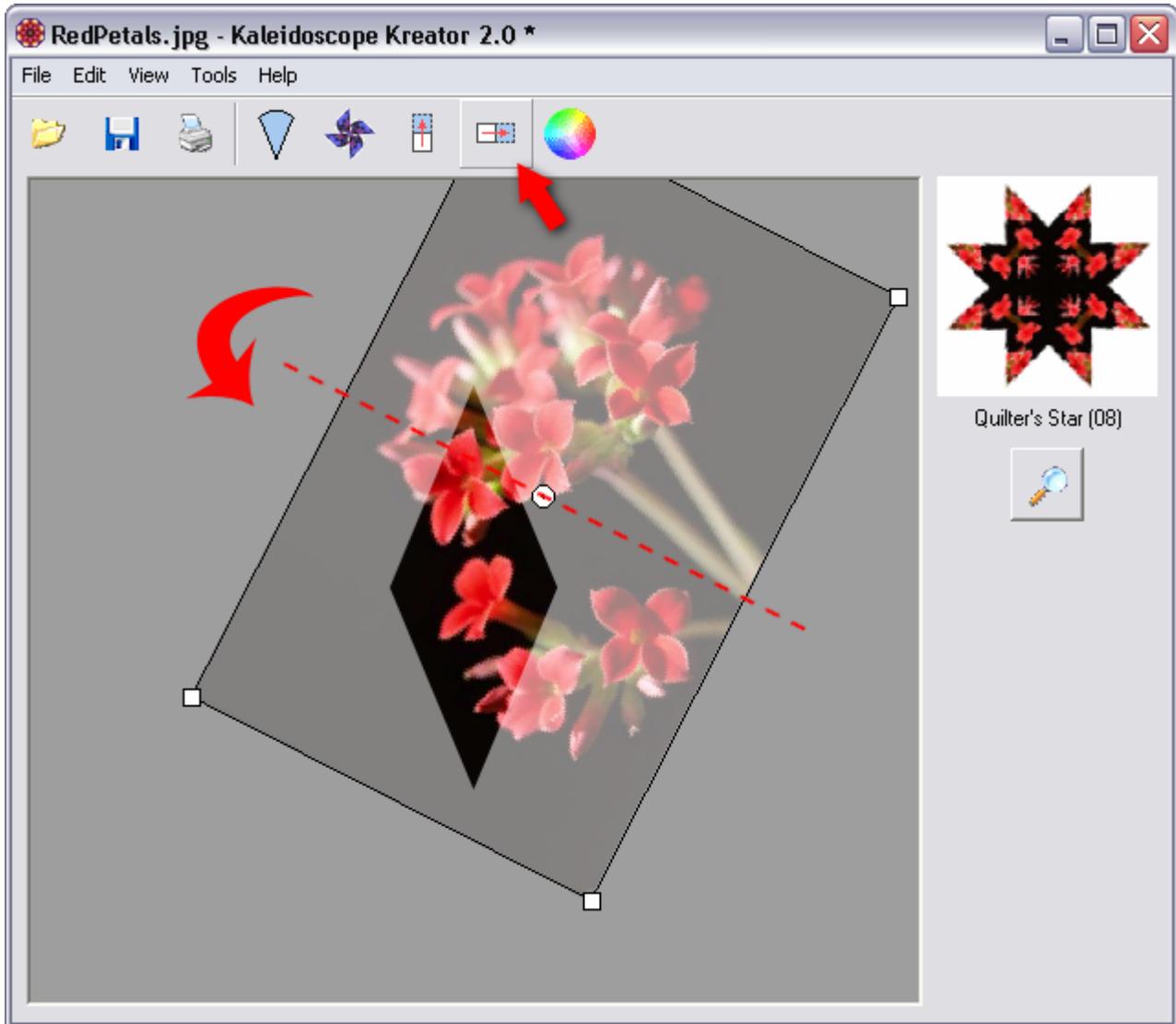
Be aware that the **Flip Image** buttons flip the image with respect to the original orientation of the image (i.e. flip axes rotate and move with the positioning of the photo.) The following example shows how the image appeared after it was opened, with the dashed-line indicating the Horizontal Flip axis:



After being rotated nearly 90 degrees, the image in the workspace staging area appears as below. Notice the location of the Horizontal Flip axis:

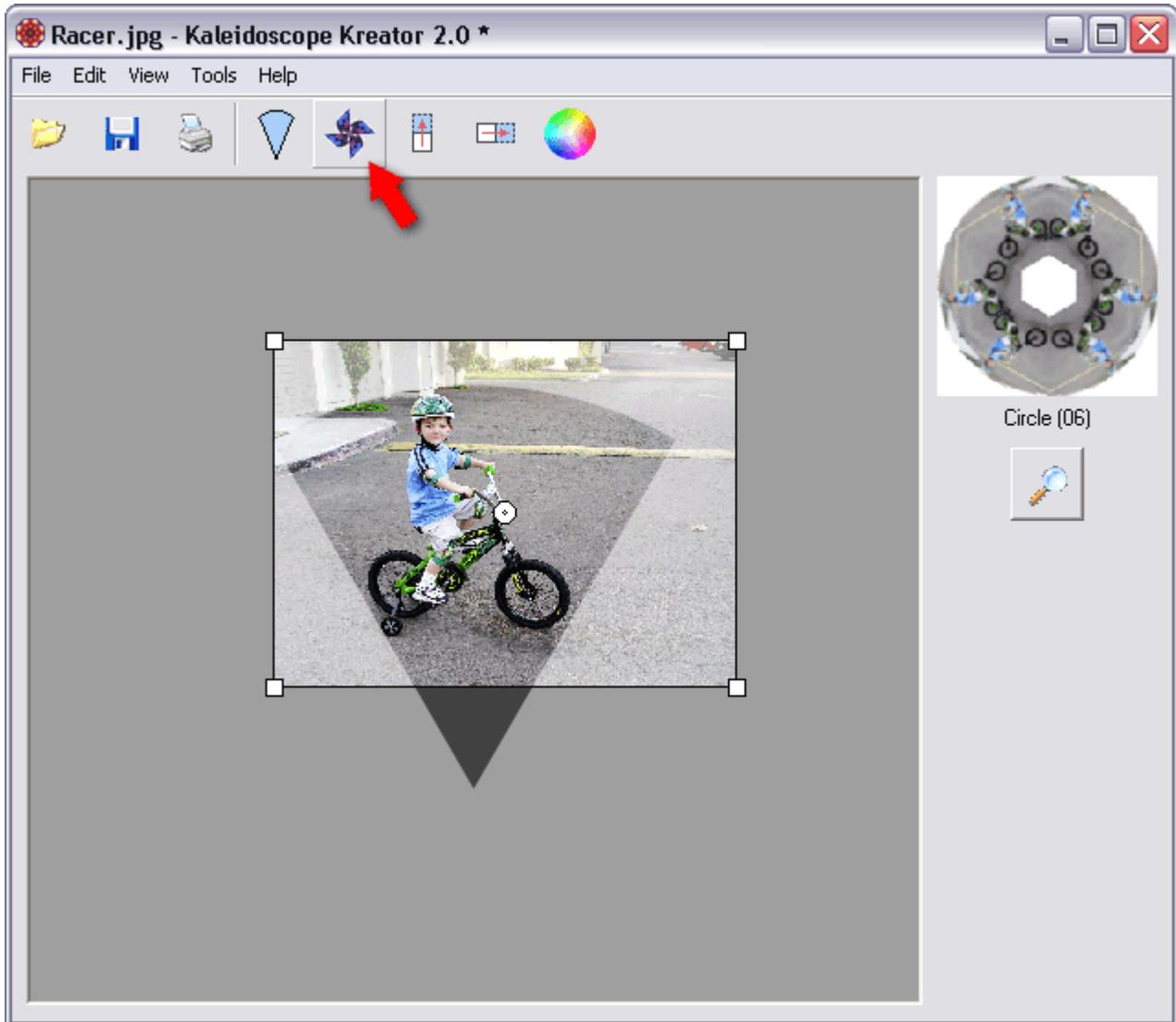


Now pressing the  **Flip Image Horizontally** button flips along the Horizontal Flip axis, as shown below:



### 3.6 Pinwheel Mode

Pinwheel Mode disables the mirroring effect that creates kaleidoscopic images. To turn on Pinwheel Mode, choose the **Edit > Pinwheel Mode** menu item or click on the  **Pinwheel Mode** toolbar button (click the button again to turn Pinwheel Mode off). The preview thumbnail is updated as Pinwheel Mode is toggled on and off.



Pinwheel Mode can be used with any kaleidoscope shape, though some shapes work better than others. (As you might guess, the Pinwheel Shapes work best with Pinwheel Mode turned on.) The kaleidoscope shapes that work best with Pinwheel Mode have "PW" in their name.

The following two examples show the effect of Pinwheel Mode. The position of the photo in the template is exactly the same in both instances; only the Pinwheel Mode has been changed.

## Kaleidoscope:

Because of the mirroring effect of kaleidoscopes, it looks like the boy on the bicycle is running into himself.



## Pinwheel:

With Pinwheel Mode turned on, the boy now appears to be riding around in a circle.



"Texture photos", i.e. photos with no clear subject, can result in some particularly beautiful pinwheels:

**Kaleidoscope:**



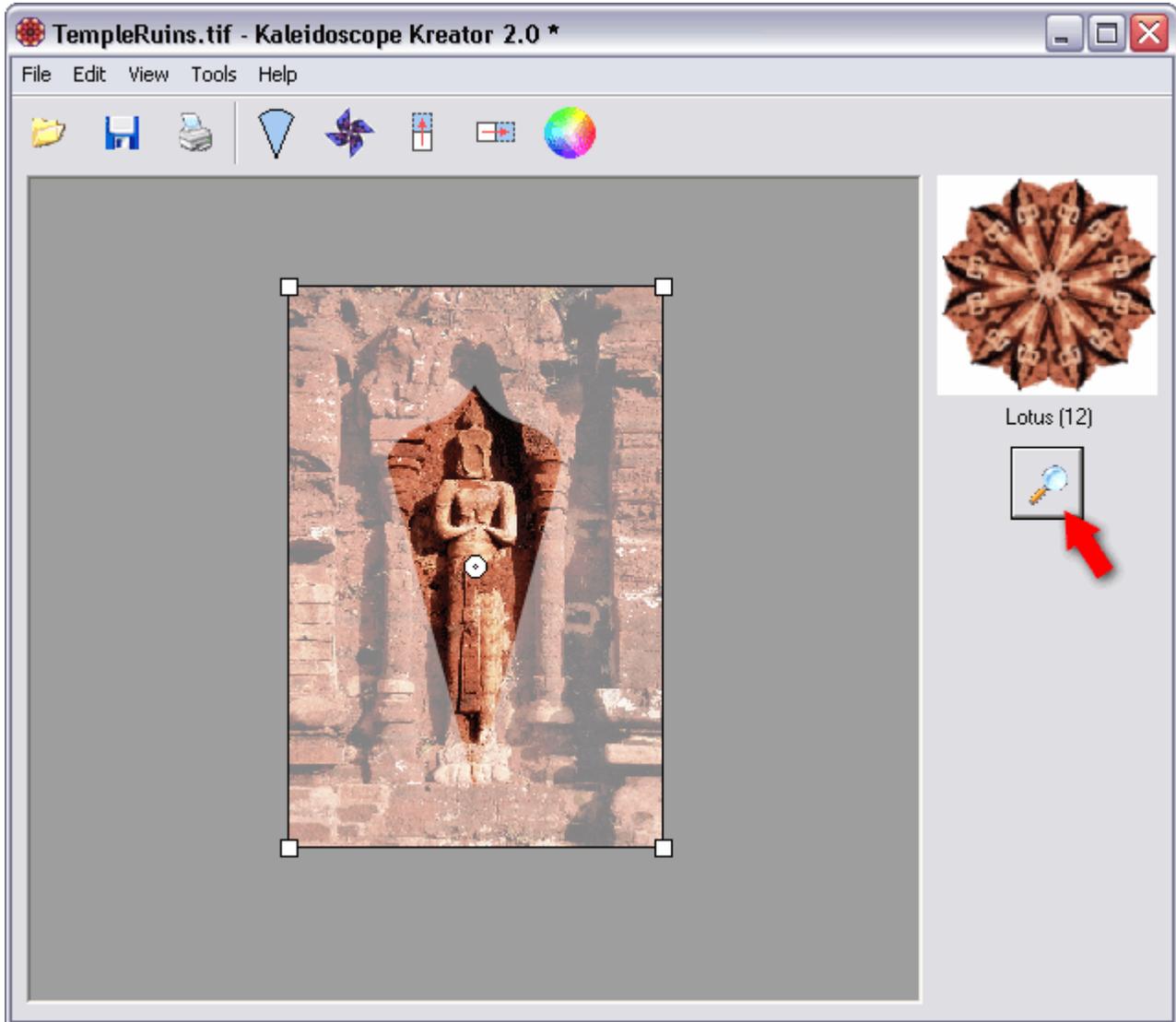
**Pinwheel:**



### 3.7 Preview Kaleidoscope

Use the **Preview** feature to verify that you have positioned the image to your liking. Choose the **View > Preview...** menu item or click on the  **Preview** button to see what your kaleidoscope will look like.

**IMPORTANT:** The Preview does not save the kaleidoscope in any way. If you close the Preview window and then move the image in the workspace staging area, the kaleidoscope you previewed is lost. If you want to keep the kaleidoscope you see in the Preview, you must first either save the kaleidoscope or save the workspace before repositioning the image.



**Note:** The quality of the Preview is lower than the quality of a saved or printed kaleidoscope. This is normal and helps to decrease the time that it takes to create the kaleidoscope preview.

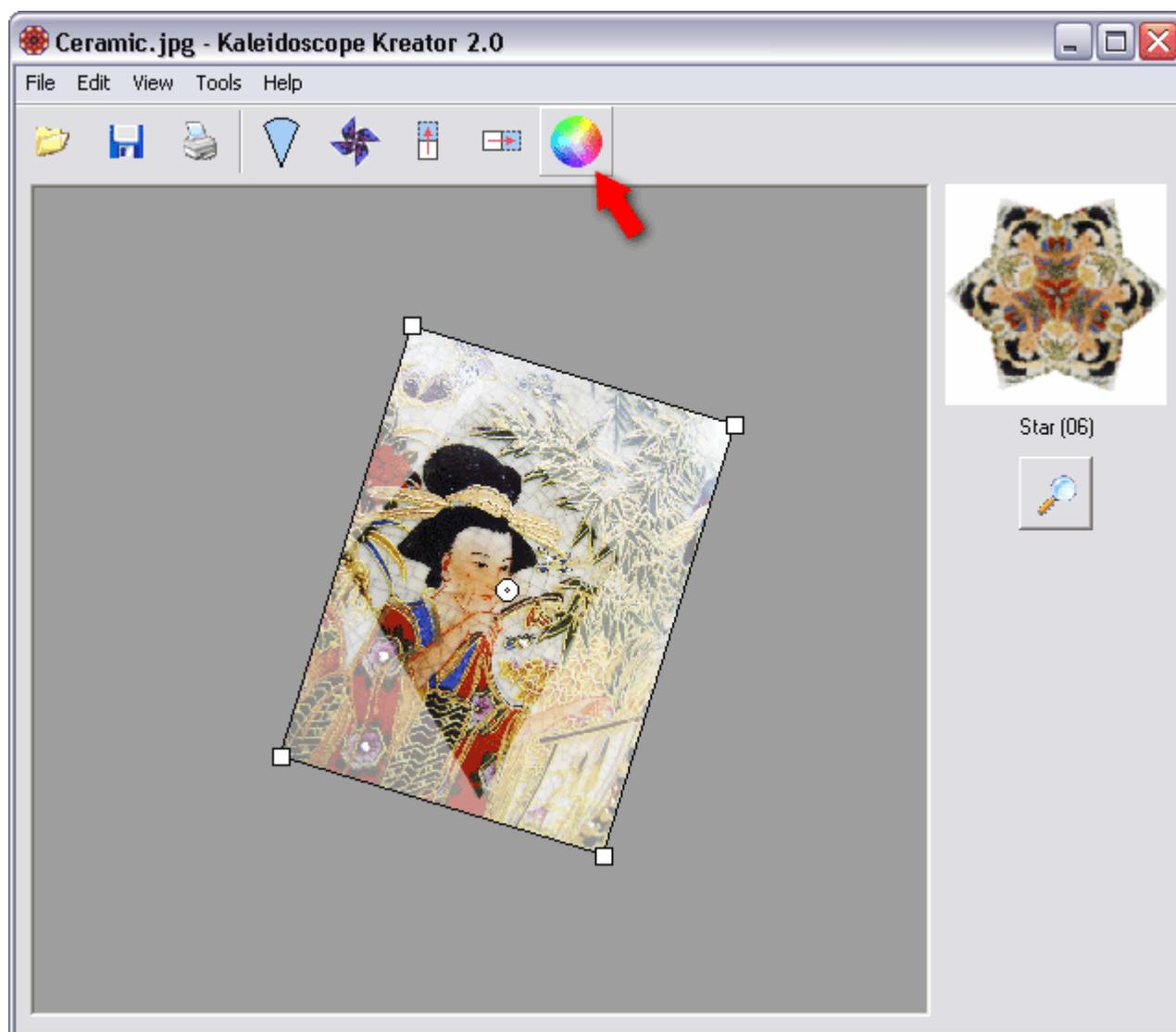
Click the **OK** button to close the Preview window and continue.



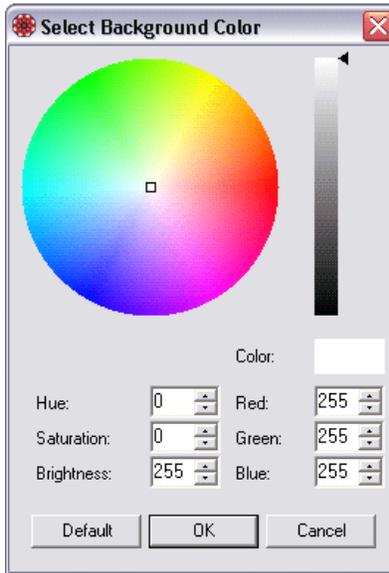
### 3.8 Change Background Color

The background color is used for the areas adjacent to the kaleidoscope image (including any center gap) and for the print margins.

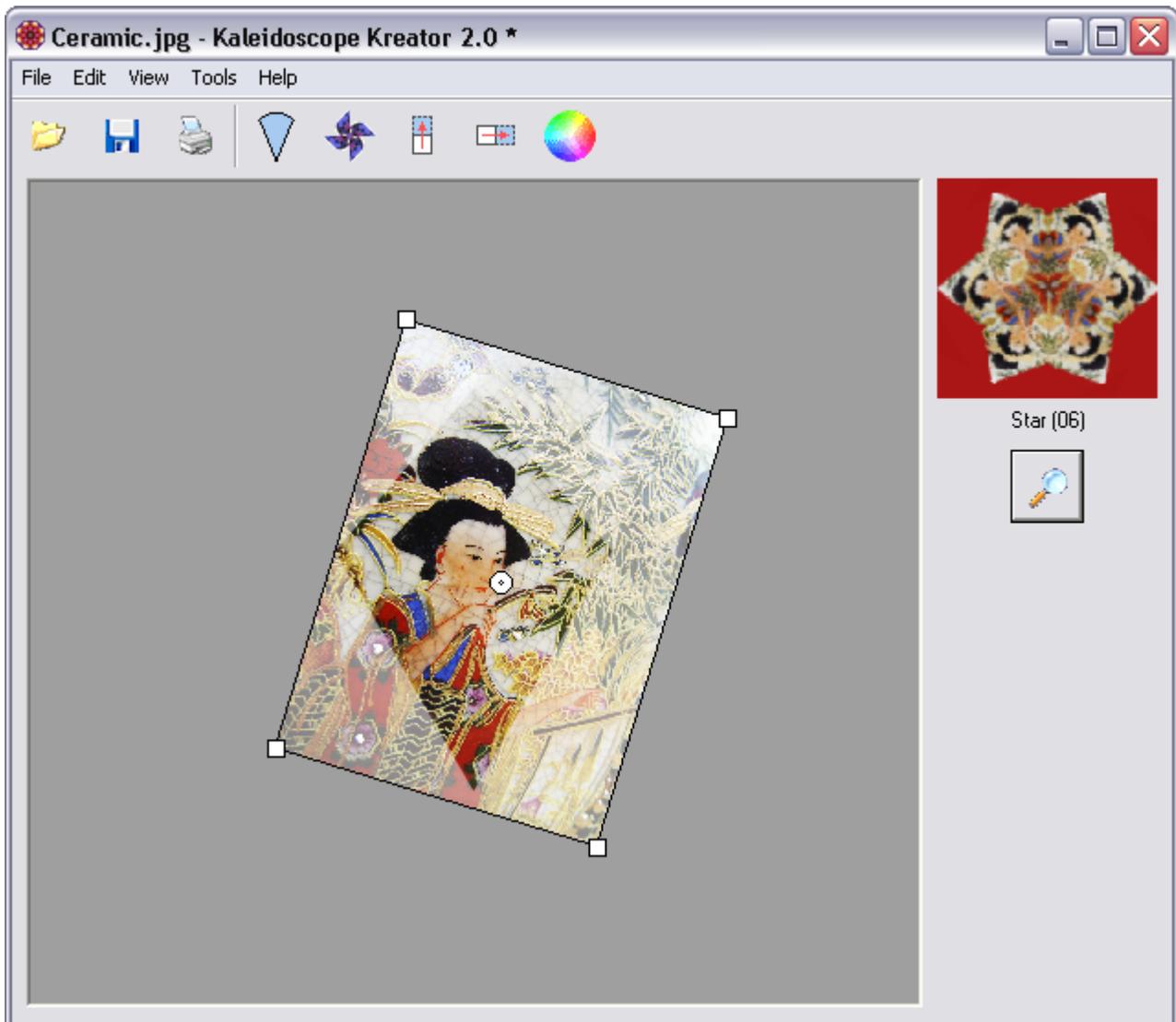
To change the background color, choose the **Edit > Background Color...** menu item or click on the  **Background Color** toolbar button.



The **Select Background Color** window includes both visual and numeric controls for choosing the background color. The color palette wheel controls hue and saturation, and the slider bar controls brightness. Beneath these visual controls are numeric fields that allow you to specify a color using Hue/Saturation/Brightness or Red/Green/Blue (RGB) values. Use the **Default** button to reset the color values for a white background color. After making your selections, click **OK** to apply the new background color to the kaleidoscope.

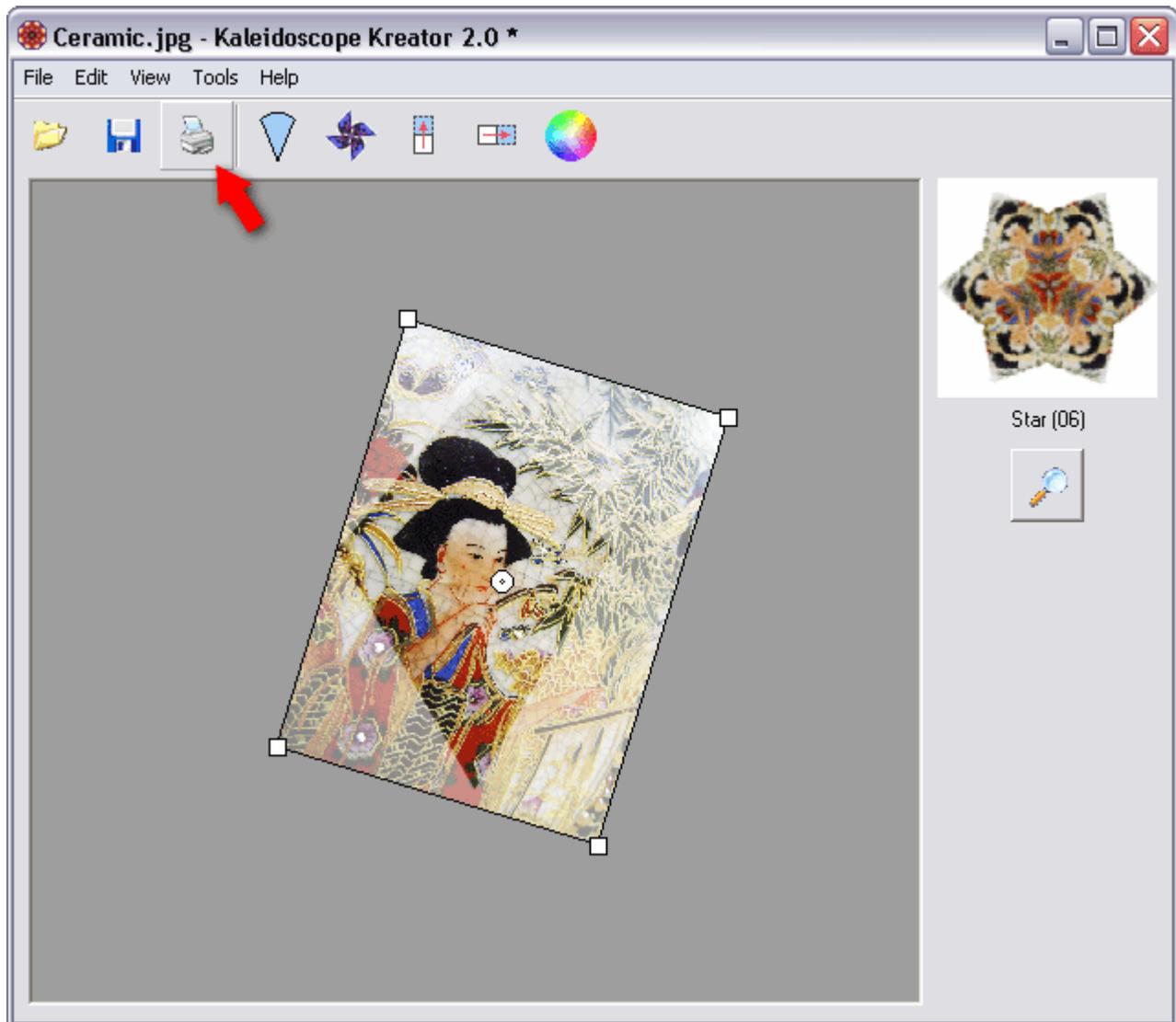


The new background color is now displayed in the preview thumbnail and will be used when printing or saving the kaleidoscope and when saving the workspace.



### 3.9 Print Kaleidoscope

You can print your kaleidoscope directly from Kaleidoscope Kreator by either choosing the **File > Print...** menu item or clicking on the  **Print Kaleidoscope** toolbar button.



This displays the **Print Kaleidoscope** dialog, where you can specify the size and image quality of the printed kaleidoscope, print margins, and whether the kaleidoscope should be centered on the printed page.



Use the **Kaleidoscope Size** field to specify the desired size of the kaleidoscope.

If **Print Margins** is checked, the kaleidoscope will be surrounded by a margin as specified in the **Margin Size** field (plus whatever additional margins are required by your printer).

If **Show Cutlines** is checked, a thin cutline will be drawn around the outside of the kaleidoscope or margin. The color of the cutline can be modified via the *Options* dialog.

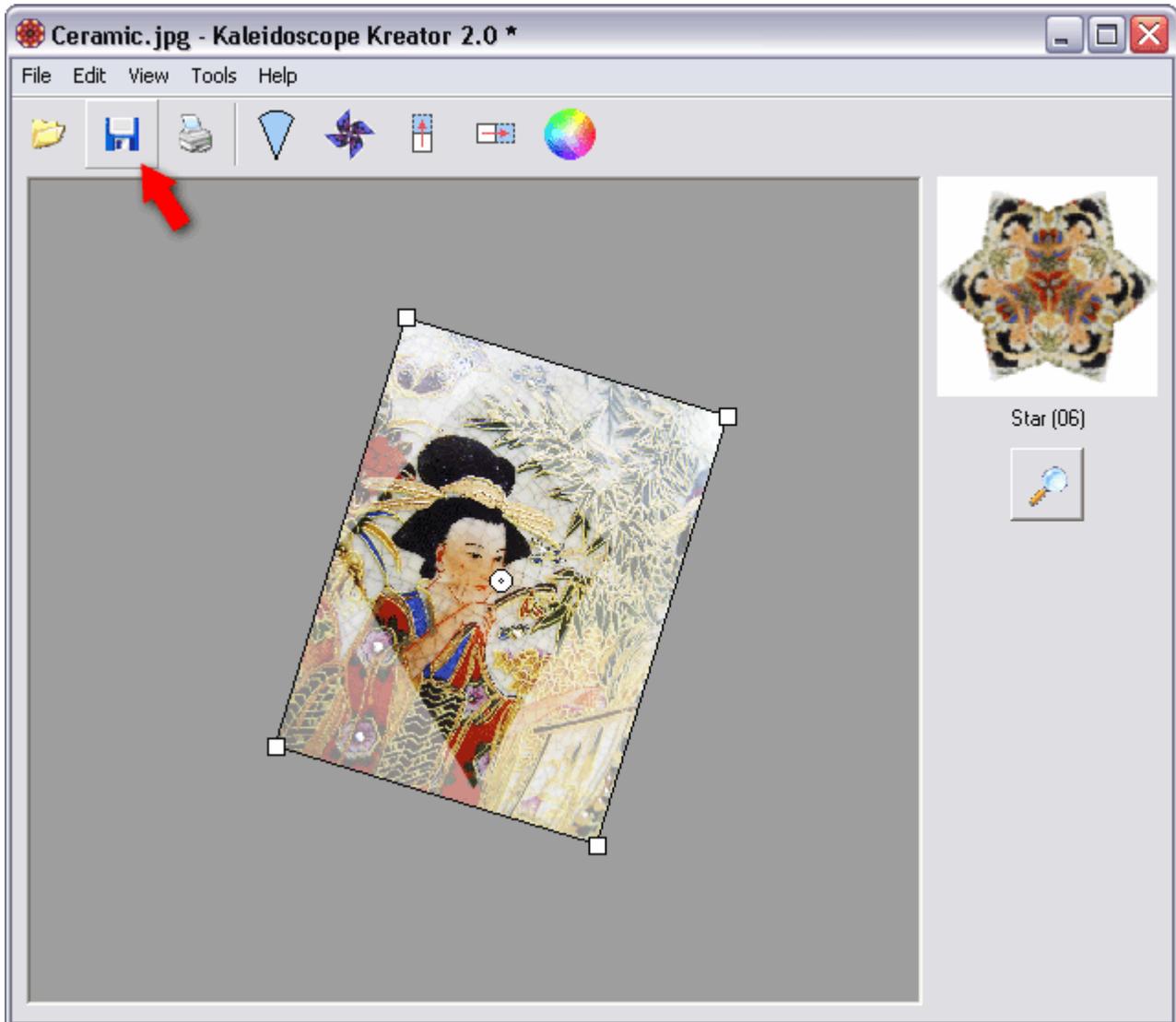
If **Center Kaleidoscope on Page** is checked, the kaleidoscope will be centered horizontally and vertically on the printed page.

After making your selections, click **OK** to view the standard Windows® **Print** dialog. Kaleidoscope Kreator will then generate the kaleidoscope and send it to the printer.

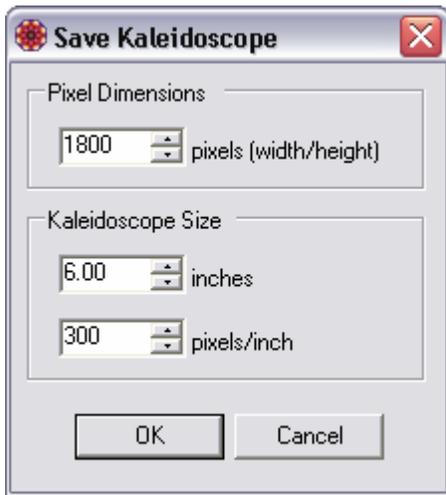
***Note:** Kaleidoscope Kreator does not save the kaleidoscope it generates for the printer; instead, it generates a new kaleidoscope each time the print function is selected. If you want multiple copies of the same kaleidoscope, use the **Print Multiple** custom print option, or set the number of copies to print in the Windows® **Print** dialog.*

### 3.10 Save Kaleidoscope

You can save your kaleidoscope to a file by either choosing the **File > Save...** menu item or clicking on the  **Save Kaleidoscope...** toolbar button.



This displays the **Save Kaleidoscope** dialog, where you can specify the size and image quality of the printed kaleidoscope, print margins, and whether the kaleidoscope should be centered on the printed page.



The **Pixel Dimensions** field is most useful if your kaleidoscope will be displayed on the web or in an email. Images displayed on-screen are sized in pixels.

The **Kaleidoscope Size** fields specify the kaleidoscope's size in inches or centimeters and its resolution in pixels/inch. Use these fields if you are saving the kaleidoscope so it can be printed later or used in a design that is measured in inches or centimeters.

For a more detailed discussion on pixel dimensions, image size and resolution, see *Understanding Image Size*.

After making your selections, click **OK** to view the standard Windows® **Save As** dialog to specify the file location and format. Kaleidoscope Kreator will then generate the kaleidoscope and save it to the specified file.

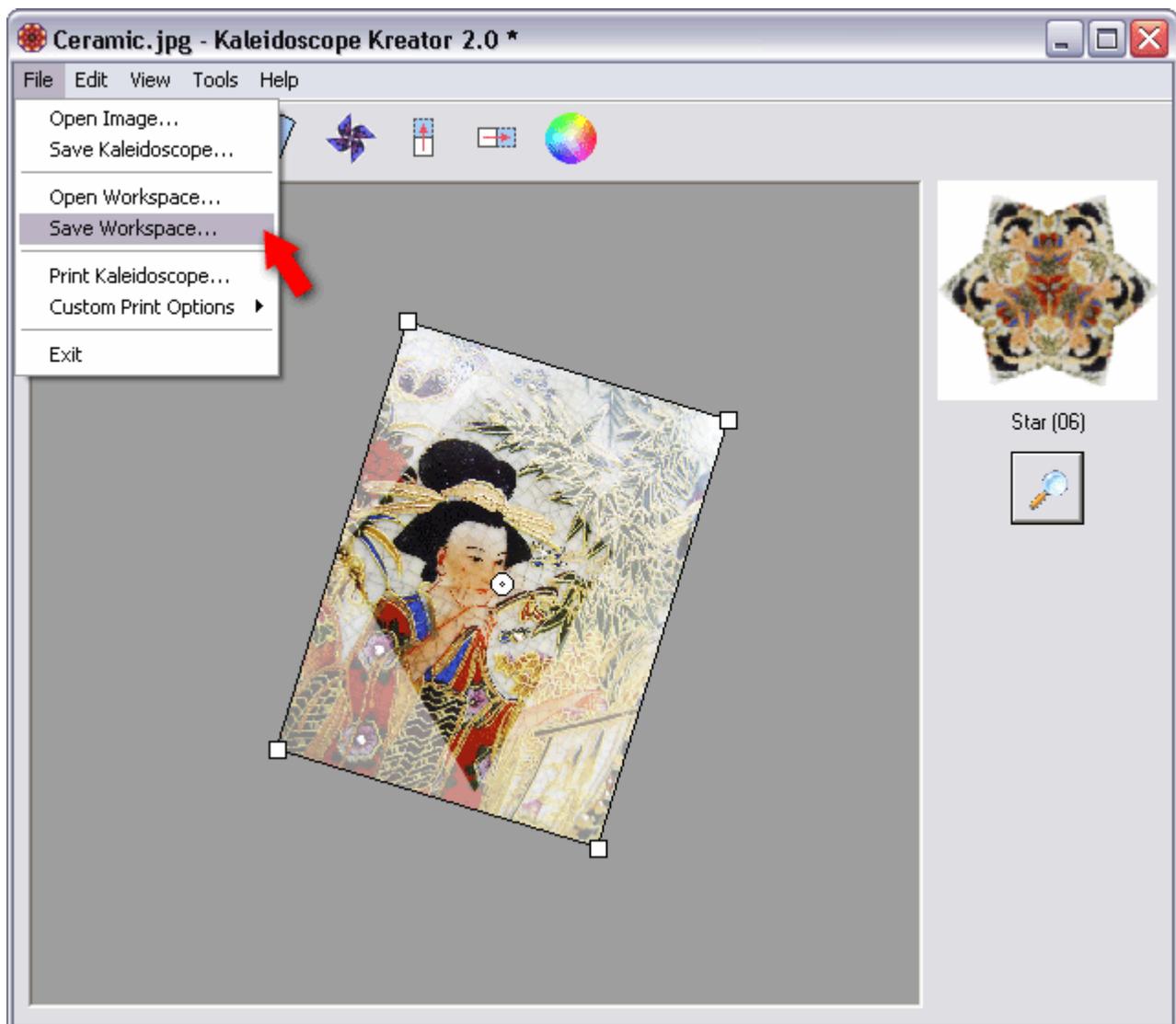
**IMPORTANT:** If you want to save two kaleidoscopes to the same file name but different file formats, you will need to retype the name rather than click on the name of the first file that you save and then changing the format. Doing the latter will cause the original file to be overwritten with the new file format. Instead choose the file type first, then retype the name.

### 3.11 Save Workspace

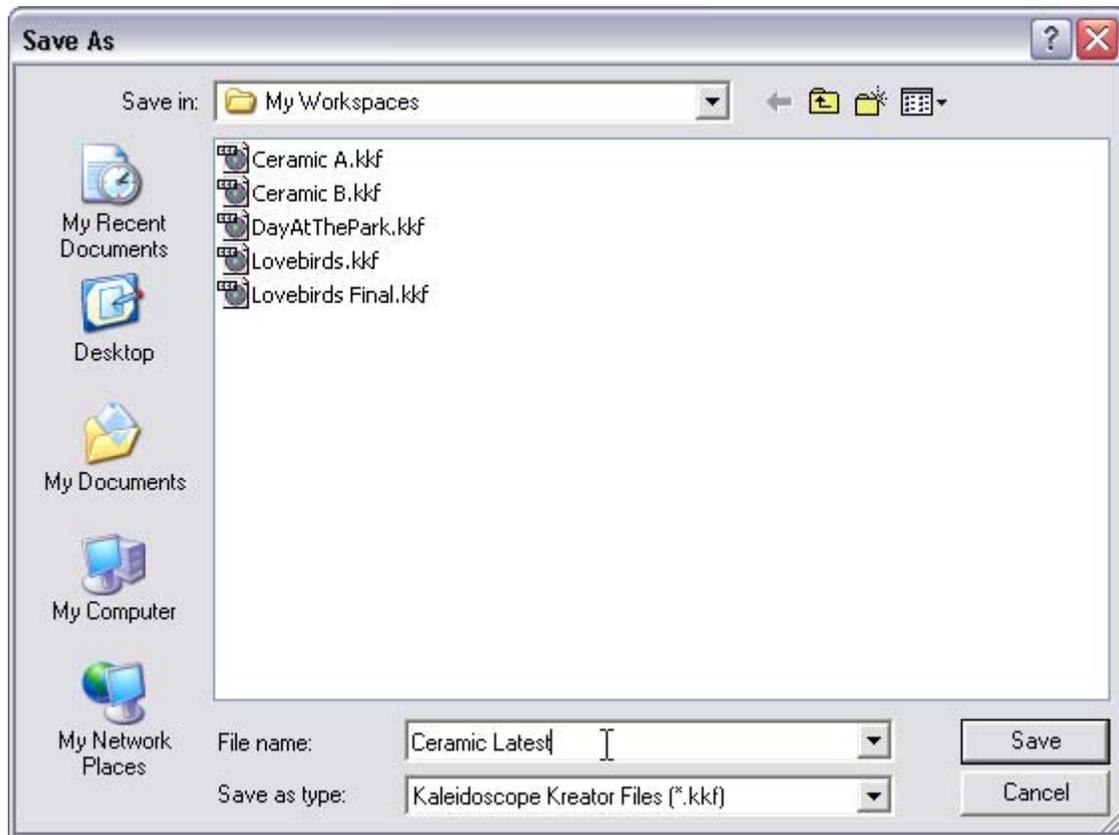
The Save Workspace feature allows you to save a snapshot of your work that you can re-open again later. When you save the workspace, the following elements are saved to the workspace file:

- current image
- image size
- image position
- image orientation
- kaleidoscope shape
- pinwheel mode setting
- background color

To save your workspace, choose the **File > Save Workspace...** menu item.



You will then be presented with the standard Windows® **Save As** dialog box. Navigate to the folder that the workspace file will be saved to, enter the name of the file, and click on the **Save** button. In this example, the workspace is saved to the file "Ceramic Latest.kkf" in a folder called "My Workspaces". Kaleidoscope Kreator workspace files always have the .kkf file extension.

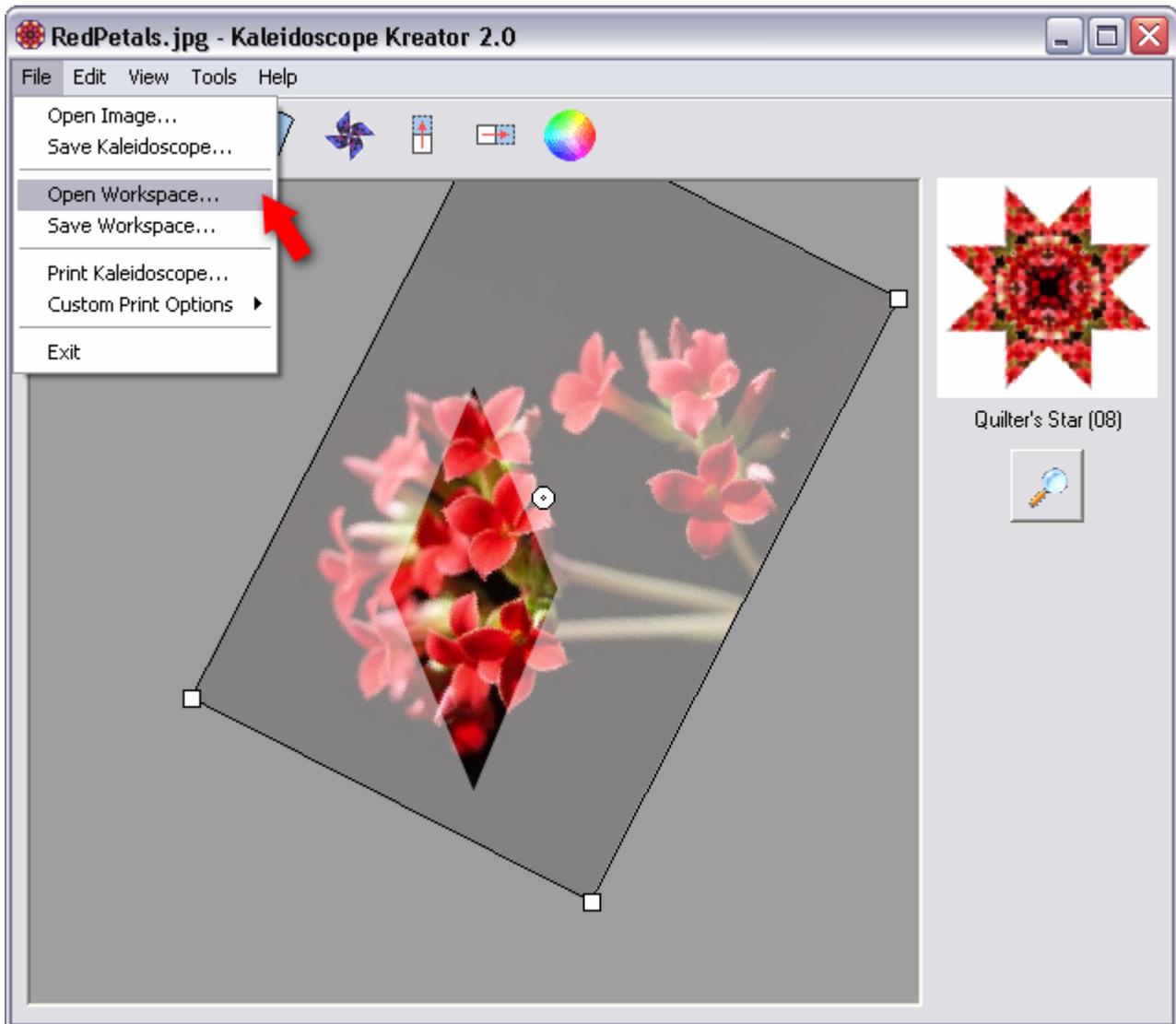


***Note:** Saving a workspace is different than saving a kaleidoscope. Use the **Save Workspace** feature to save "works in progress", or to establish a snapshot that you can go back to after experimenting with subsequent changes. In contrast, **Save Kaleidoscope** is used to save the "finished product" so it can be printed later or edited in another graphics program.*

### 3.12 Open Workspace

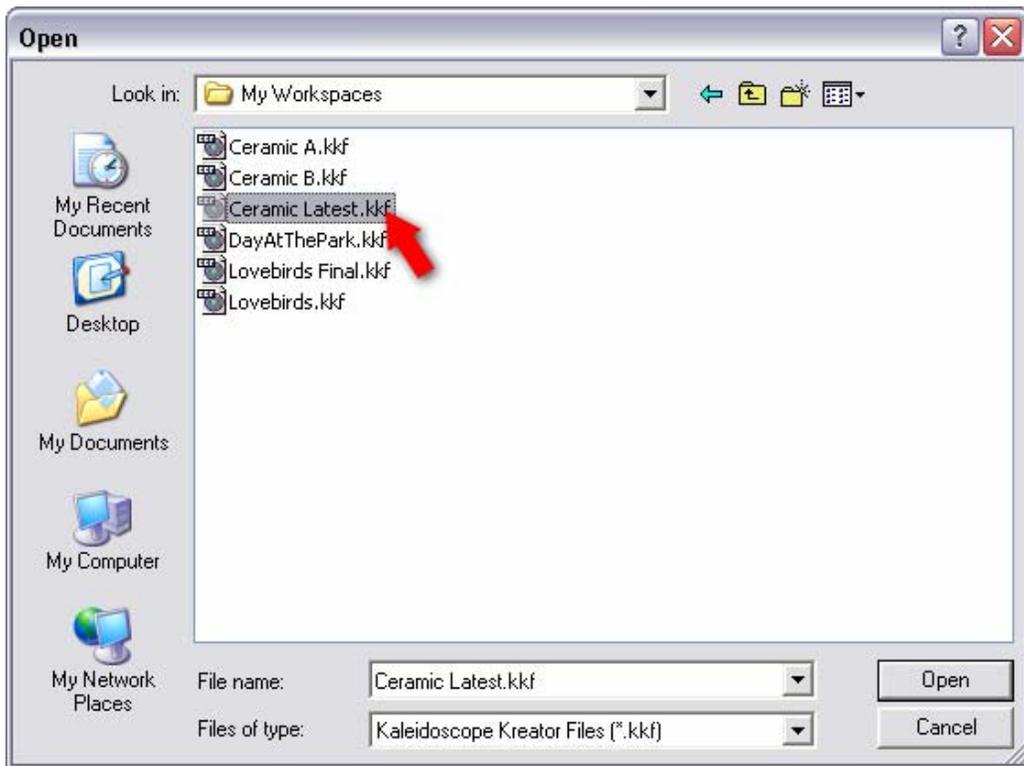
When you open a previously-saved workspace, the image size, position, orientation, kaleidoscope shape, pinwheel mode setting and background color from that workspace are restored.

To open a previously-saved workspace, choose the **File** > **Open Workspace...** menu item.

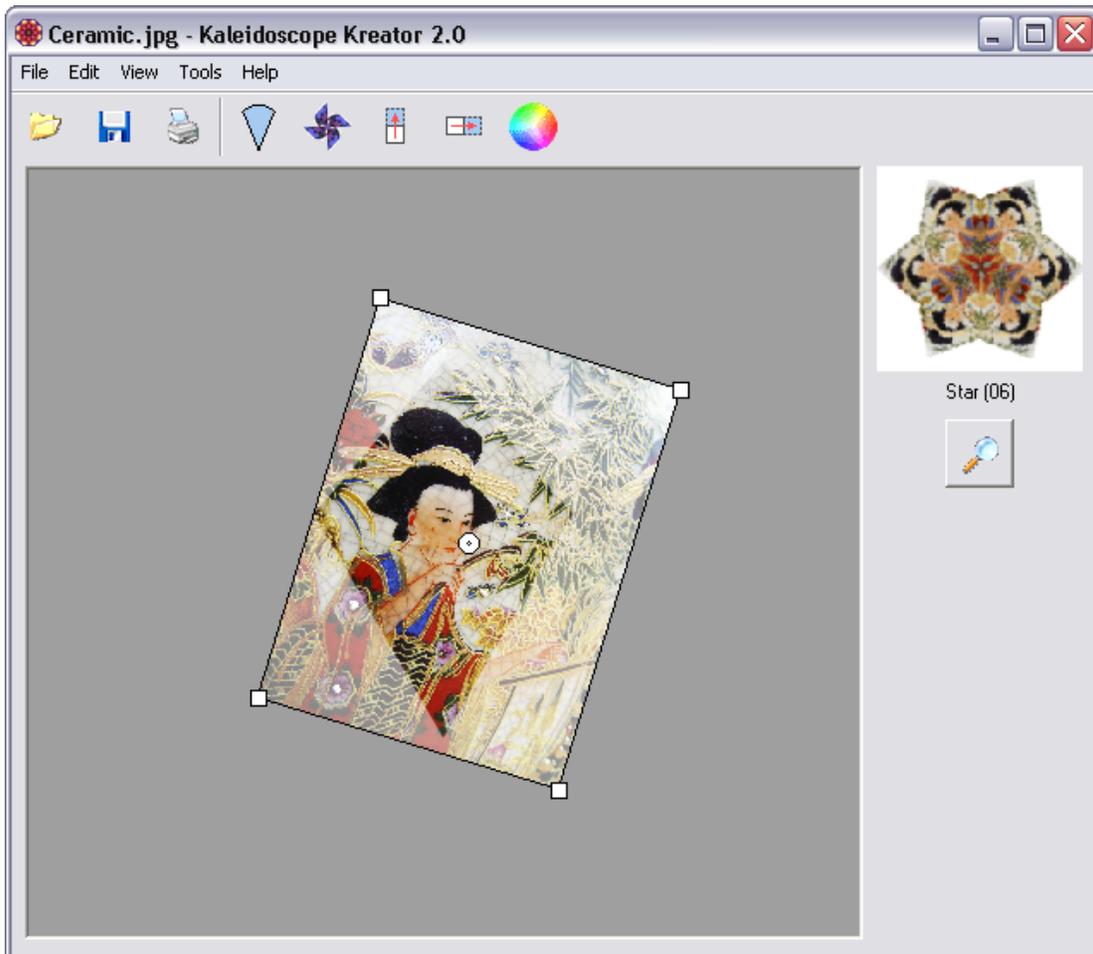


***Note:** When you open a previously-saved workspace, the current image size, position, etc., will be replaced with the previous values. Kaleidoscope Kreator will notify you if your current work has not yet been saved.*

You will then be presented with the standard Windows® **Open** dialog box. Double-click on the workspace file that you want to open or highlight it and click on the **Open** button. Kaleidoscope Kreator workspace files always have a **.kkf** file extension.



In this example, the previously-saved workspace file "Ceramic Latest .kkf" is opened and its image and settings are now displayed in the workspace.

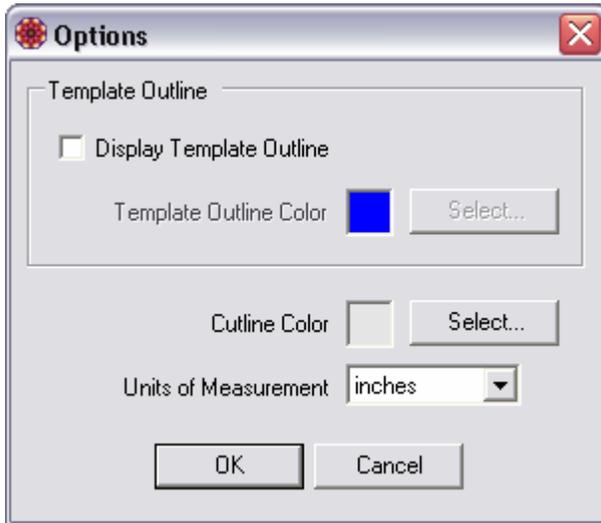


### 3.13 Setting Options

The **Options** dialog allows you to change the following settings:

- Enable/disable the template segment outline and change its color
- Change the color of the outline used when printing kaleidoscopes
- Change the measurement units used for kaleidoscope size, print margins, etc.

To view the **Options** dialog choose the **Tools > Options...** menu item.



If **Display Template Outline** is checked, the segment template in the workspace staging area will include a thin outline that highlights the template's edges. This feature is useful when working with light-colored images or images with white backgrounds that would otherwise make the template boundary difficult to see. To change the color used for the template outline, click on the **Select...** button next to the **Template Outline Color** thumbnail to bring up the **Select Outline Color** dialog.

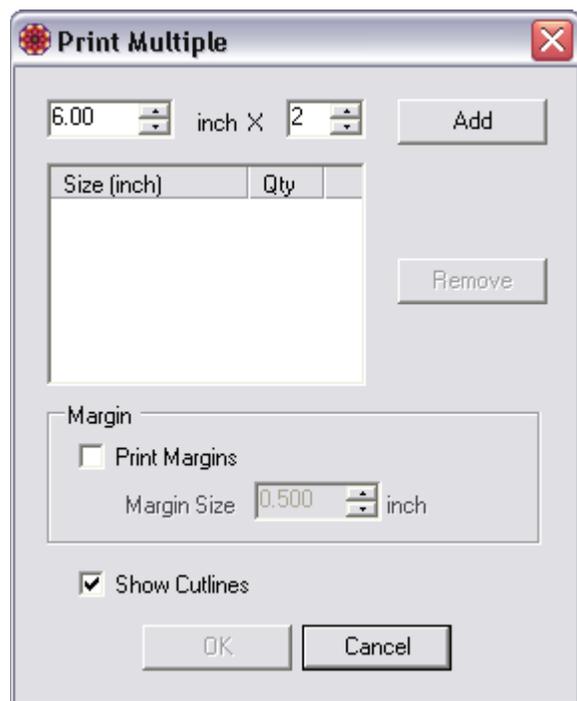
To change the color used for the cutlines when printing kaleidoscopes, click on the **Select...** button next to the **Cutline Color** thumbnail to bring up the **Select Cutline Color** dialog.

Use the **Units of Measurement** field to specify whether Kaleidoscope Kreator will display sizes in inches or centimeters.

### 3.14 Printing Multiple Kaleidoscopes

The **Print Multiple** custom print option allows you to print same- or different-sized copies of a kaleidoscope on the same page. This is especially useful for printing patterned paper, or whenever your project requires many copies of the same kaleidoscope.

To use this feature, choose the **File > Custom Print Options > Print Multiple...** menu item. The **Print Multiple** dialog is displayed.



Use the numeric fields to specify a particular kaleidoscope size and quantity and then click the **Add** button to add it to the list. Repeat for each size and quantity that you wish to print. To delete an entry from the list, highlight it and click the **Remove** button.

If **Print Margins** is checked, each kaleidoscope will be surrounded by a margin as specified in the **Margin Size** field. Kaleidoscope Kreator will attempt to print as many kaleidoscopes as will fit on a given page, taking the specified margin size (and whatever additional page margins are required by your printer) into account. See the following example for more details.

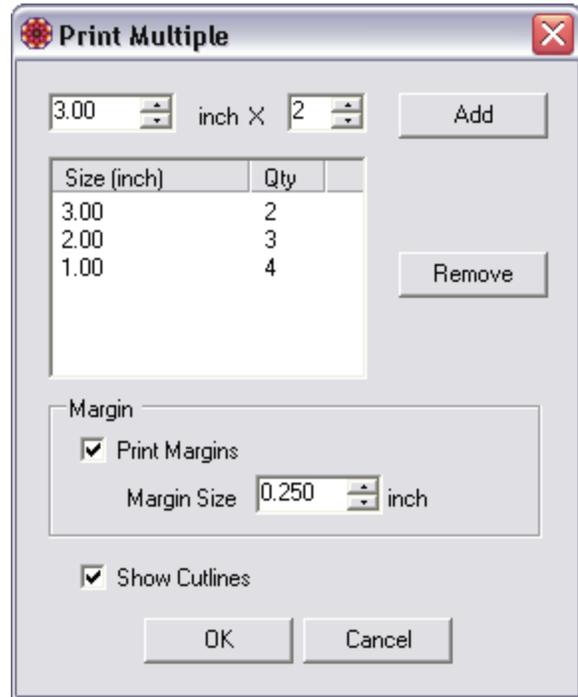
If **Show Cutlines** is checked, a thin line will be included on the page to indicate the margin boundaries. The color of the cutlines can be changed via the **Options** dialog.

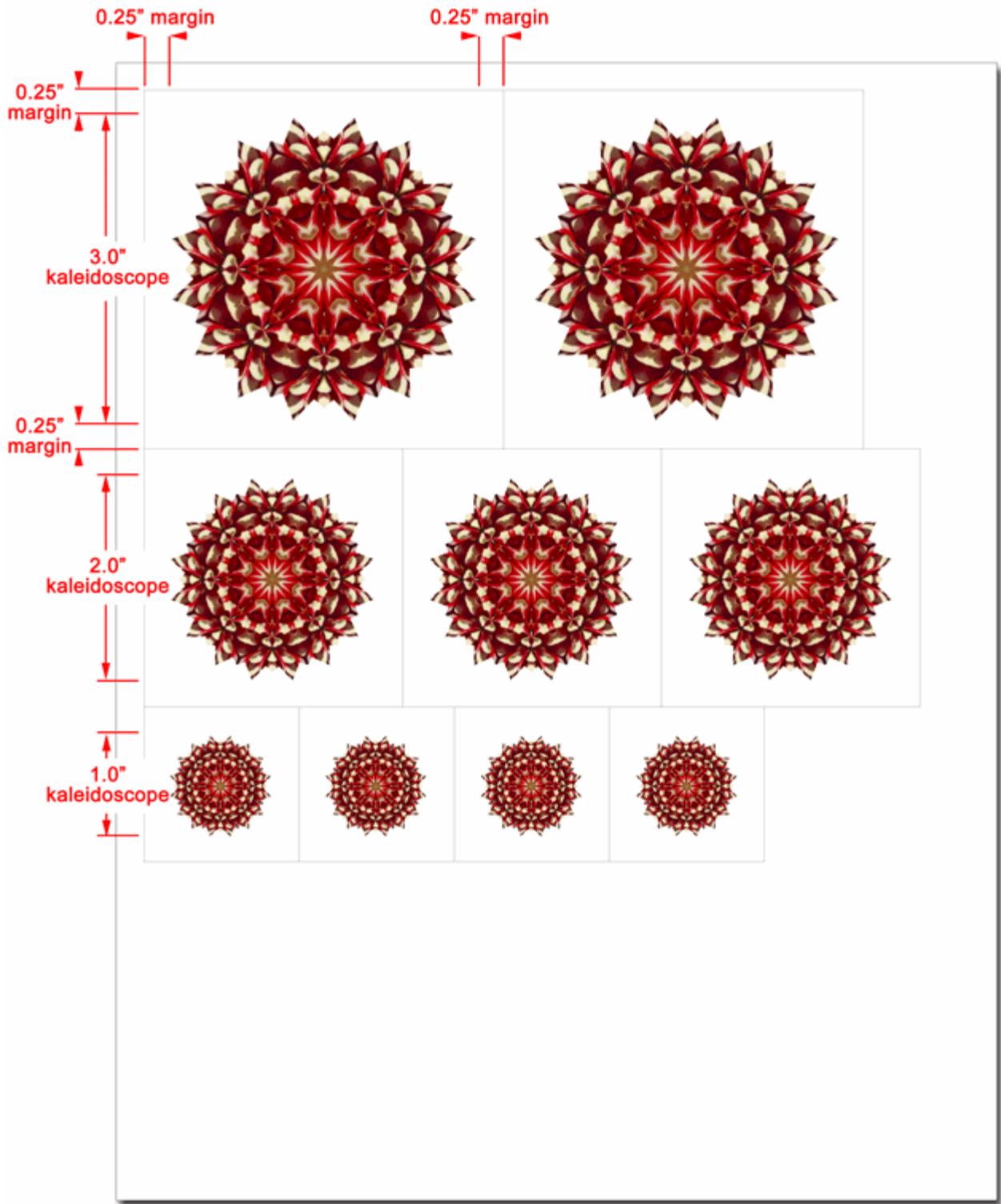
After making your selections, click **OK** to view the standard Windows® **Print** dialog.

## Example

In this example, three different kaleidoscope sizes have been specified: two 3-inch kaleidoscopes, three 2-inch kaleidoscopes, and four 1-inch kaleidoscopes. Each kaleidoscope is to be surrounded by a 0.250 inch print margin, and cut lines will indicate margin boundaries.

With the specified margin size of 0.250 inches, the resulting printed page would be similar to the following (assumes 8.5x11 paper size):

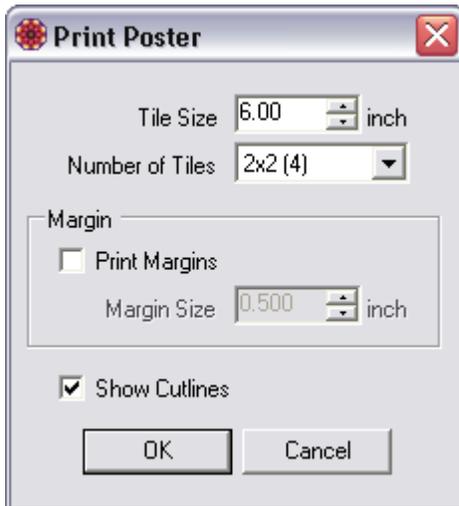




### 3.15 Poster Printing

The **Print Poster** custom print option allows you to create kaleidoscope posters and other large-format projects by separating the kaleidoscope into "tiles" that can be printed on individual pages.

To use this feature, choose the **File > Custom Print Options > Print Poster...** menu item. The following dialog is displayed.



Use the numeric fields to specify the size of each tile and the number of tiles in each row/column.

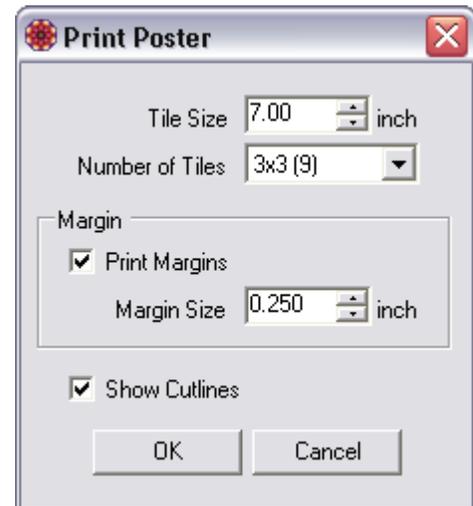
If **Print Margins** is checked, each tile will be surrounded by a margin as specified in the **Margin Size** field. Kaleidoscope Kreator will attempt to print as many tiles as will fit on a given page, taking the specified margin size (and whatever additional page margins are required by your printer) into account. See the following example for more details.

If **Show Cutlines** is checked, a thin line will be included on the page to indicate the margin boundaries. The color of the cutlines can be changed via the **Options** dialog.

After making your selections, click **OK** to view the standard Windows® **Print** dialog.

#### Example

In this example, a nine-piece 21-inch kaleidoscope is created by specifying tile size of 7 inches and a 3x3 tile arrangement. With a margin size of 0.250 inches, the resulting printed pages would be similar to the following (assumes 8.5x11 paper size):

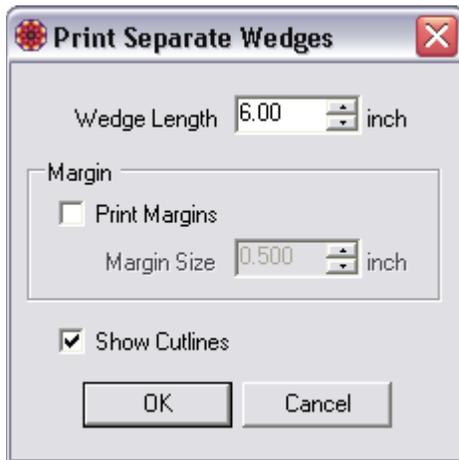




### 3.16 Printing Wedges Separately

The **Print Separate Wedges** custom print option allows you to print each kaleidoscope segment separately. This feature is especially useful when printing kaleidoscopes on fabric that will be used in a quilt, or to combine two or more photos in a kaleidoscope.

To use this feature, choose the **File > Custom Print Options > Print Separate Wedges...** menu item. The following dialog is displayed.



Use the **Wedge Length** to specify the length of each wedge.

If **Print Margins** is checked, each wedge will be surrounded by a margin as specified in the **Margin Size** field. Kaleidoscope Kreator will attempt to print as many wedges as will fit on a given page, taking the specified margin size (and whatever additional page margins are required by your printer) into account.

If **Show Cutlines** is checked, a thin line will be included on the page to indicate the margin boundaries. The color of the cutlines can be changed via the **Options** dialog.

After making your selections, click **OK** to view the standard Windows® **Print** dialog.

## 4. Appendix

### 4.1 System Requirements

#### Minimum system requirements:

Windows<sup>®</sup> XP Home or XP Professional with SP2; Windows<sup>®</sup> 2000 with SP4  
800 MHz processor

256 MB of RAM

45 MB of available hard disk space

#### Recommended system requirements:

Windows<sup>®</sup> XP Home or XP Professional with SP2

1.0GHz processor or faster

512 MB of RAM or more

45 MB of available hard disk space

Windows<sup>®</sup> is a registered trademark of Microsoft Corporation.

## 4.2 Supported Image File Types

**BMP** - Windows Bitmap (.bmp) format is an historic file format that is still widely used. It was developed by Microsoft® as a device-independent bitmap format, i.e. the image data is stored in such a way that the image can be displayed by Windows® on any type of display device. In general, it is not the preferred format to store images because it is not supported on other platforms such as Mac®.

**JPG (or JPEG)** – The Joint Photographic Experts Group (.jpg) format is optimized for photos and other “continuous tone” images. That is why it is the format of choice for most digital cameras. Its compression scheme analyzes an image and “discards” those pixels which the human eye most likely won’t notice. However, because it “discards” information, it is a *lossy* file format and if the compression is too strongly applied, you will see the effects of it! (“*Lossy*” simply means that some image data is “lost” in the compression process.) That said, huge savings in file sizes can be had (over TIF) without much noticeable degradation. It should be noted however that repeatedly saving the same file in JPG format will cause a cumulative loss of data which can very quickly become noticeable to the naked eye. If you need to edit a file, it is best to save the intermediate steps as TIF, then save the final version as JPG (if necessary).

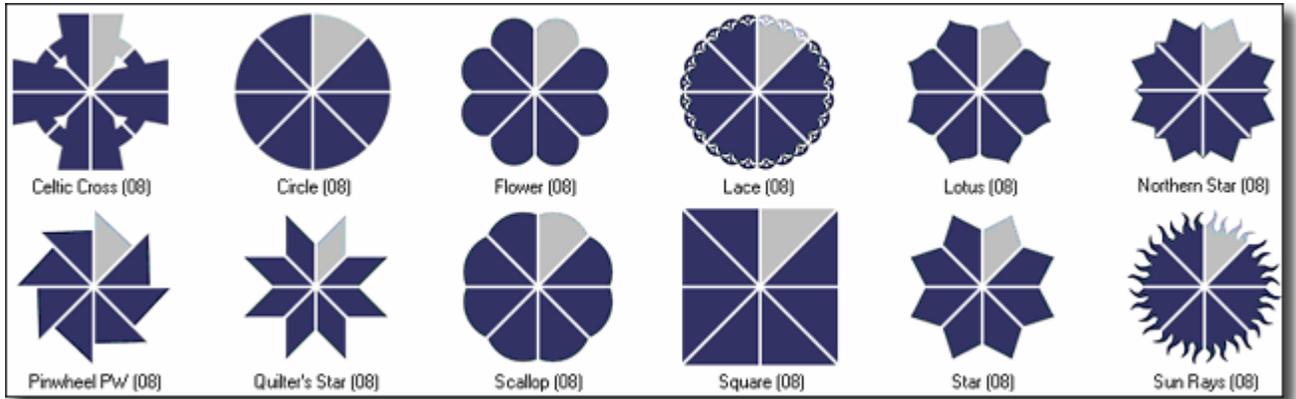
**PNG** – The Portable Network Graphics (.png) format was developed to replace the GIF format in order to improve the severe lossy compression scheme as well as a counter to the proprietary licensing that GIF format requires. It uses a *lossless* compression scheme (i.e., no data is “lost” in the compression process) and while it doesn’t reduce file sizes as much as GIF, it completely preserves the original data. It also supports transparency and perhaps because of this is a popular format for sharing digital scrapbooking elements.

**TIF (or TIFF)** – The Tagged Image File Format (.tif) is a flexible format that can be both compressed and non-compressed. The compression (if applied) is *lossless*, but is not universally supported. (Kaleidoscope Kreator does *not* support compressed TIF files.) Because of this, files saved in TIF format are often not compressed and thus quite large. However, TIF is still the standard choice for archiving images that you want to keep for years to come because it is non-proprietary and contains all of the “original” data, including the color mode and image size information.

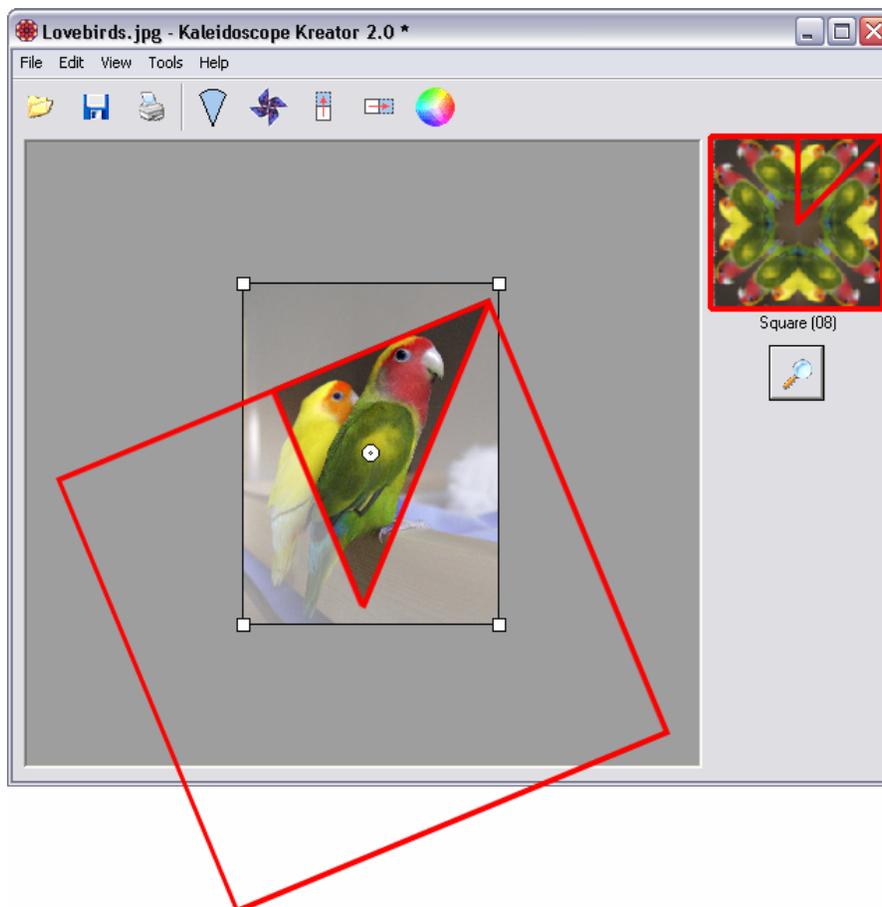
Windows® and Microsoft® are registered trademarks of Microsoft Corporation.  
Mac® is a registered trademark of Apple Computer, Inc.

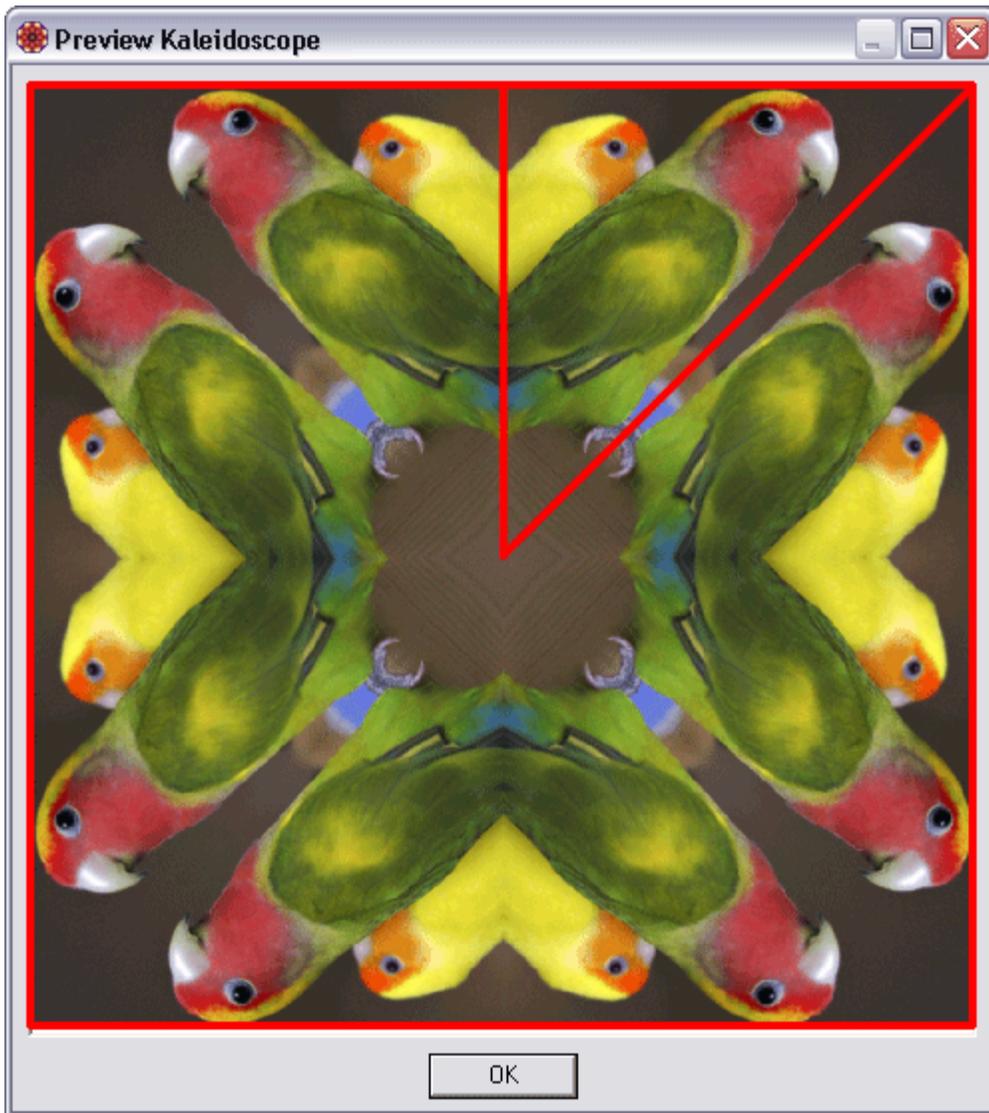
### 4.3 Segment Orientation Tips

Each shape displayed in the **Select Kaleidoscope Shape** dialog has a highlighted segment that indicates how the segment template in the workspace will be oriented in the resulting kaleidoscope. Here are the diagrams for some 8-segment shapes:



The relationship between the segment template and the resulting kaleidoscope can be confusing at first, especially for non-standard shapes like the Square and Celtic Cross. The trick is to focus on positioning the subject of your photo within the template - and letting Kaleidoscope Kreator do the rest of the work. The following example shows how the template is oriented for the 8-segment Square shape:





## 4.4 Understanding Image Size

Image size is composed of three related parts:

1. Pixel Dimensions
2. Print Size
3. Resolution

### 1. Pixel Dimensions

*Pixel Dimensions* refers to the total number of pixels that make up a digital image. ("Pixels" stands for "picture elements", i.e. the elements that make up a picture.) Pixel dimensions are referenced in terms of *width x height*, e.g. 600x400. The greater the number of pixels, the more information (or detail) an image contains.

### 2. Print Size

Print Size is perhaps the easiest component to understand because it is simply the dimensions (in inches or centimeters) that an image is printed at. When someone refers to a 4"x6" image, they are referring to the print size.

### 3. Resolution

Resolution refers to how much information is contained in a given amount of space. Resolution is referenced in terms of *dots per inch (or dpi)*. The important thing to remember about resolution is that the higher the resolution, the more detail you will see in your printed images.

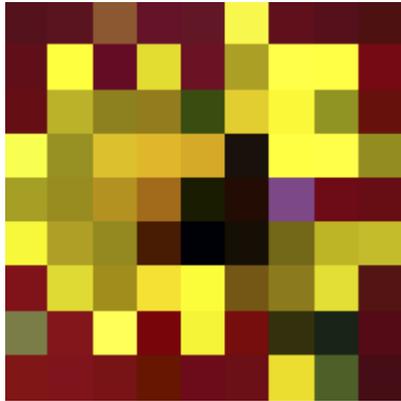
To better understand resolution, it may be easier to think of the dots as squares - or more specifically as tiles in a mosaic. Imagine that you are remodeling your kitchen and you've decided to put a tiled mosaic on the wall behind your stovetop in a space of about 3'x3' (about the size of the stovetop itself.) You've drawn the outline of a sunflower on the wall to guide the placement of the tile:



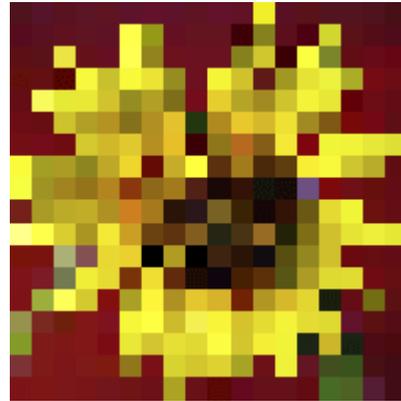
Now it's time to actually choose the tile for your mosaic. Your goal is to create the mosaic with as much detail as possible while minimizing the amount of tile cutting you will need to do. When

you get to the store, you discover that tile comes in many different sizes, e.g. 4", 2", 1" and 1/2" (to name just a few.)

Imagine trying to create a mosaic of the sunflower using only the 4" tiles. Would you recognize the design as a sunflower or just a bunch of different colored squares? Now imagine trying to create the mosaic design using the 2" tiles. You may be able to recognize the sunflower in the design, but it will probably take some imagination. Now imagine creating the entire mosaic using 1" tiles and then 1/2" tiles. Think of how many tiles that would be!! The following examples provide a visual example of the differences using each of the different tile sizes. (Move your mouse over each of the images, to see the sunflower sketch superimposed on the mosaic.)



Sunflower mosaic using 4" tiles



Sunflower mosaic using 2" tiles



Sunflower mosaic using 1" tiles

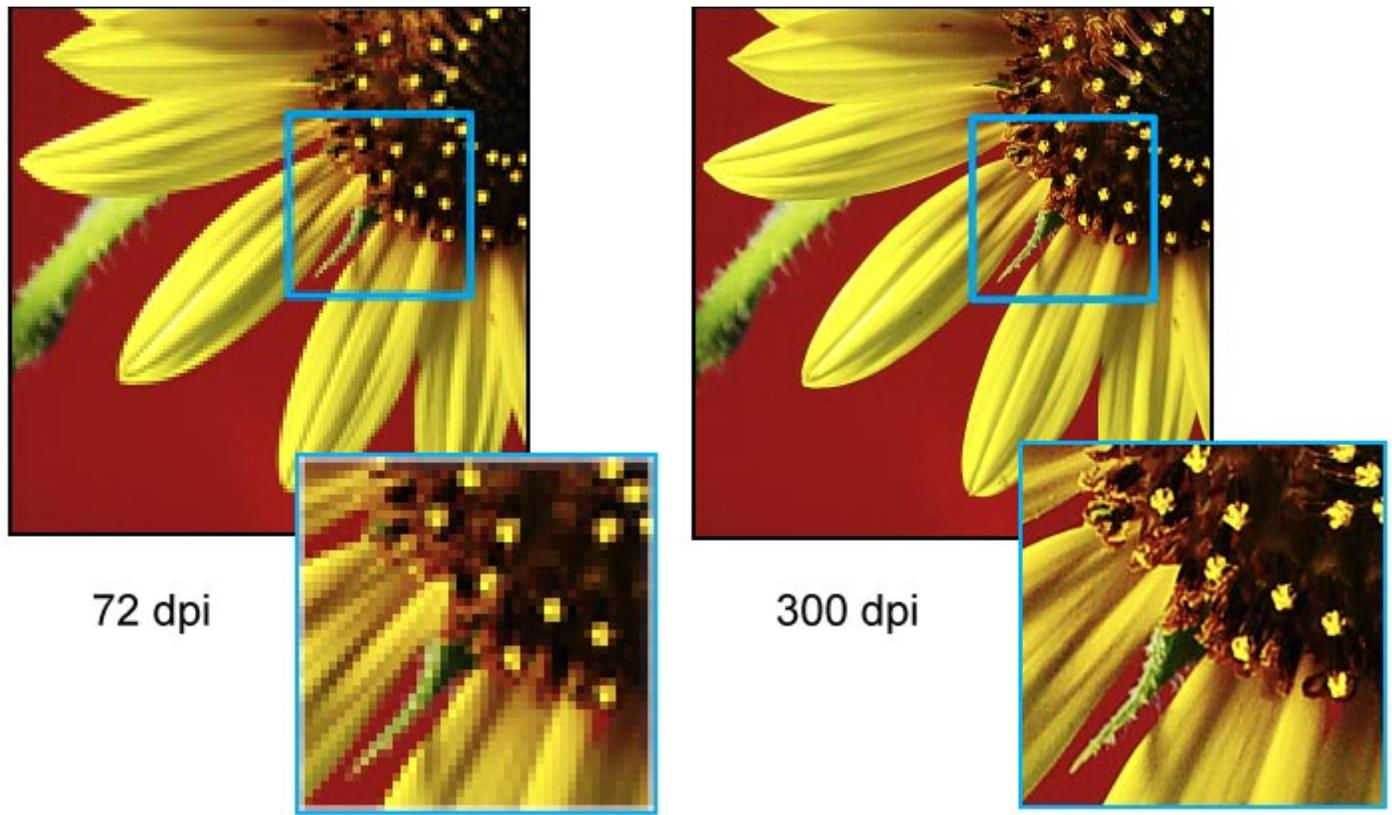


Sunflower mosaic using 1/2" tiles

Why have we spent all this time explaining mosaic tiles? Because pixels are like mosaic tiles! The more pixels you fit into a given space (i.e., the higher the resolution), the more detail your printed image contains.

You may have read or heard advice that images destined for the web or e-mail should have a resolution of 72 dpi; likewise images destined to be printed should have a resolution of 300 dpi. While these are not hard and fast rules, there is a reason these numbers exist. A computer monitor cannot display more than 72 dots per inch. (Actually, advances in technology have changed this, but that is another discussion.) So creating an image with a higher resolution does not actually provide more detail for the viewer because the computer monitor cannot display

more detail than 72 dpi. Printers on the other hand (including inkjet printers) can print at least 300 dots per inch (and often more.) That is four times more information (i.e. detail) that can be included in an image to be printed than one destined for the web:



### **Why does all of this matter?**

Having a good understanding of the relationship between pixel dimensions, print size and resolution will give you greater control over the quality of your images:  $Pixel\ Dimension = Print\ Size * Resolution$ . A resolution that is too low may result in your printed images looking pixelated, i.e. you can see the individual pixels. A resolution that is too high (thus resulting in a larger number of total pixels) will increase the processing time on an image because more pixels have to be processed than are really necessary.

## Examples

Let's take a look at some examples to visually see how this all fits together. In each of the examples below, the size of the image is shown relative to a "printed" 6"x4" grid.

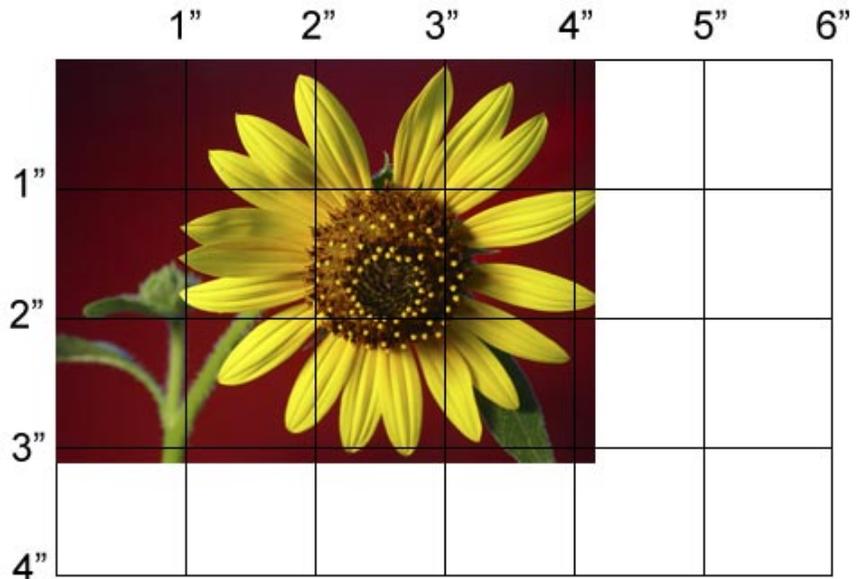
**Example 1** - We start with an image of 300x225 pixels at 72dpi. If we increase the resolution while keeping the pixel dimensions the same, the print size will decrease. It is important to note that because the pixel dimensions remained the same and the resolution increased, the perceived quality of the image stays the same (or may look better), though the printed image size will be smaller.

At 72dpi, the print size is 4.17"x3.13":

Print size = Pixels / resolution

Print size =  $300 \text{ px} / 72 \text{ dpi} = 4.17"$

Print size =  $225 \text{ px} / 72 \text{ dpi} = 3.13"$

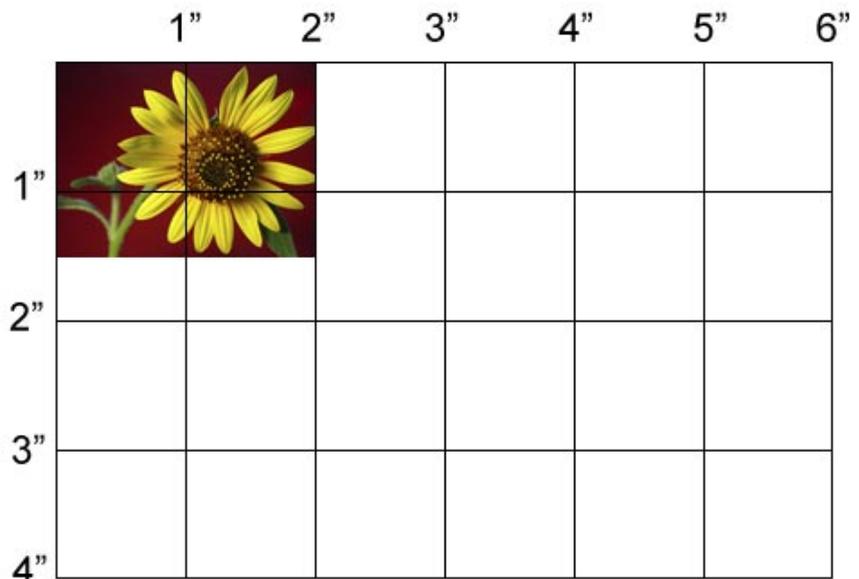


Increasing the resolution without changing the pixel dimensions results in a decrease in the print size.

Print size = Pixels / resolution

Print size =  $300 \text{ px} / 150 \text{ dpi} = 2"$

Print size =  $225 \text{ px} / 150 \text{ dpi} = 1.5"$



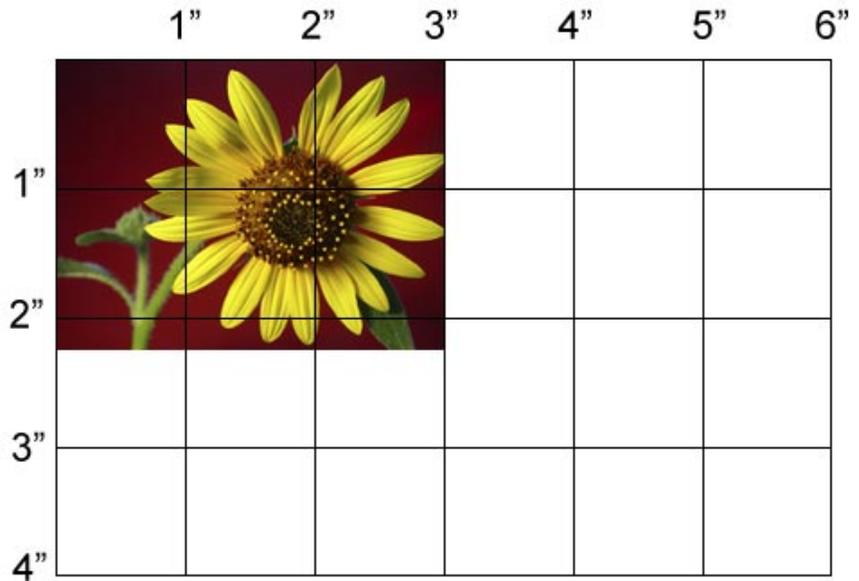
**Example 2** - We start with an image of 900x675 pixels that prints at 3"x2.25". If we increase the print size while keeping the pixel dimensions the same, the resolution will decrease. It is important to note that when the pixel dimensions stay the same and the resolution decreases, the quality of the image may degrade because the same number of pixels are spread out over a larger area which has the effect of increasing the size of the pixels. If the change is large enough, you may see some pixelation of your image when printed.

At 3"x2.25", the resolution is 300 dpi:

Resolution = Pixels / print size

Resolution = 900 px / 3" = 300 dpi

Resolution = 675 px / 2.25" = 300 dpi

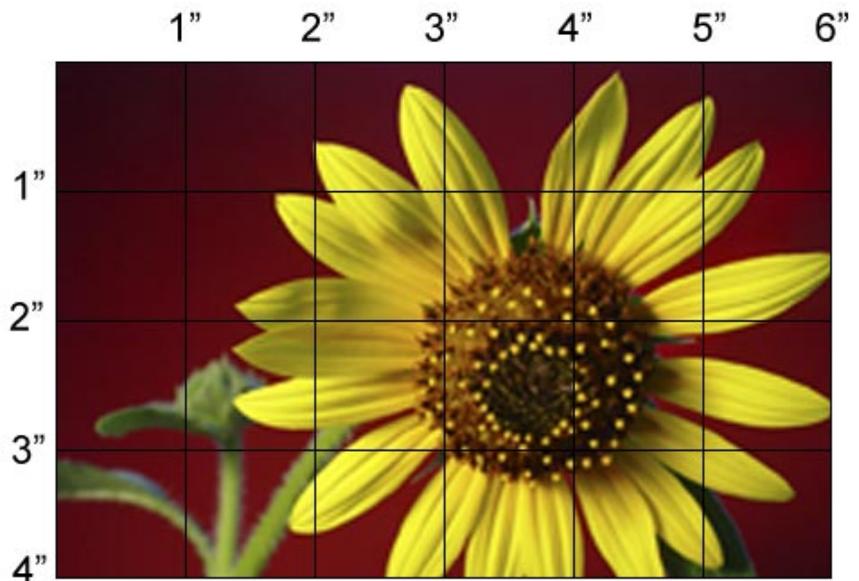


Increasing the print size while keeping the pixel dimensions the same results in a decrease in resolution.

Resolution = Pixels / print size

Resolution = 900 px / 6" = 150 dpi

Resolution = 675 px / 4.5" = 150 dpi



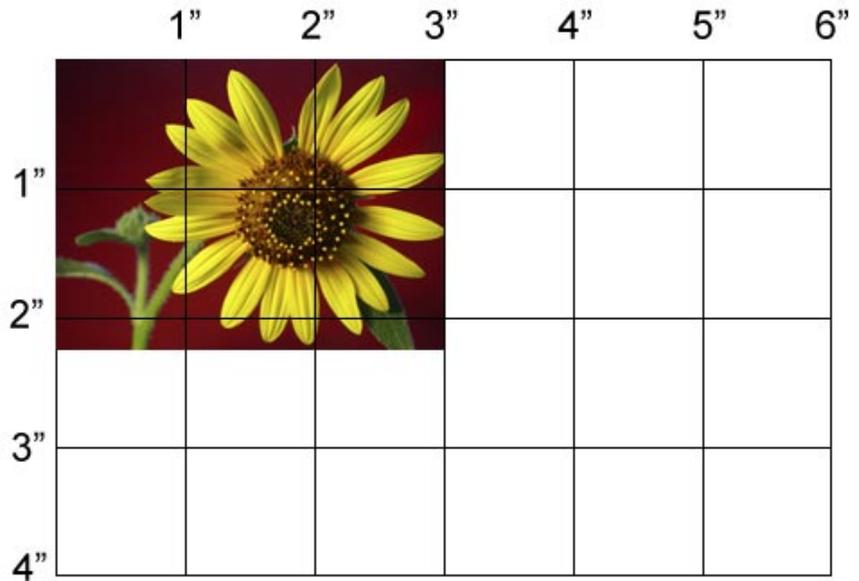
**Example 3** - We start with an image that is 3"x2.25" and 300dpi. If we decrease the resolution while keeping the print size the same, the pixel dimensions will decrease. It should be noted that any time the pixel dimensions are changed, there is a decrease in the quality of the image because the graphics application must average the correct color values for the remaining pixels. In this case, the averaging of the color values in addition to the decreased resolution further degrades the image quality. Look closely at the stamens of the flower to see the effect of this.

At 3"x2.25" and 300dpi, the pixel dimensions of the image are 900x675.

Pixels = Print size \* resolution

Pixels = 3" \* 300 dpi = 900

Pixels = 2.25" \* 300 dpi = 675



Decreasing the resolution while keeping the print size the same results in a decrease in pixel dimensions.

Pixels = Print size \* resolution

Pixels = 3" \* 150 dpi = 450

Pixels = 2.25" \* 150 dpi = 338

