GRAPHICS AND MULTIMEDIA IN WEB DESIGN

Tips and Best Practices

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WHY MULTIMEDIA

◎ **To make your website more attractive** (logo, buttons, etc.)

◎ **To give your website a unique theme** (emphasize your website colors with appropriate exciting images and videos).

◎ **To visualize your data** (graphs, diagrams, etc.)

➢ Require basic knowledge in graphic design.

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OUTLINE

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  - Color Palettes
  - File Formats
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  - Vector Vs. Raster images
  - Favicosns
- Multimedia
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IMAGES: APPLICATIONS

- ☐ Basic: **Microsoft Paint**

- ☐ Most common: **Adobe Photoshop**

- ☐ Open source: **GIMP** (http://www.gimp.org/windows/)

IMAGES: DEFINITION

◎ Images are a grid of pixels. Each pixel holds a value of the color it represents.

◎ The pixel dimensions of the image are the image **resolution** (e.g. 600x800 pixels)

◎ Also, Number of pixels in each inch indicates the **resolution** of the image (spatial resolution) and it is measured with **ppi** (pixels per inch.)

　◉ More pixels in each inch give us more details.

　◉ Web images resolution: usually 72 ppi.

| 1 x 1 | 2 x 2 | 5 x 5 | 10 x 10 | 20 x 20 | 50 x 50 | 100 x 100 |

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Image form Wikipedia

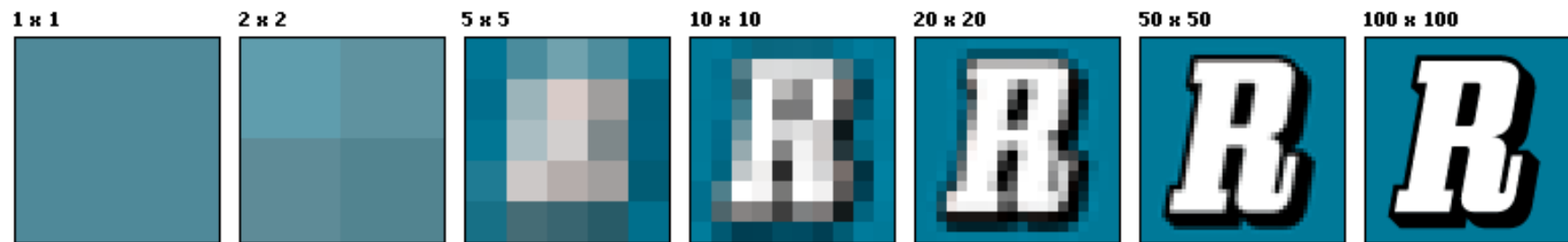# IMAGE SCALING AND DOWNSAMPLING

◎ To stitch images to your wireframe you need to have full control over the image dimensions.

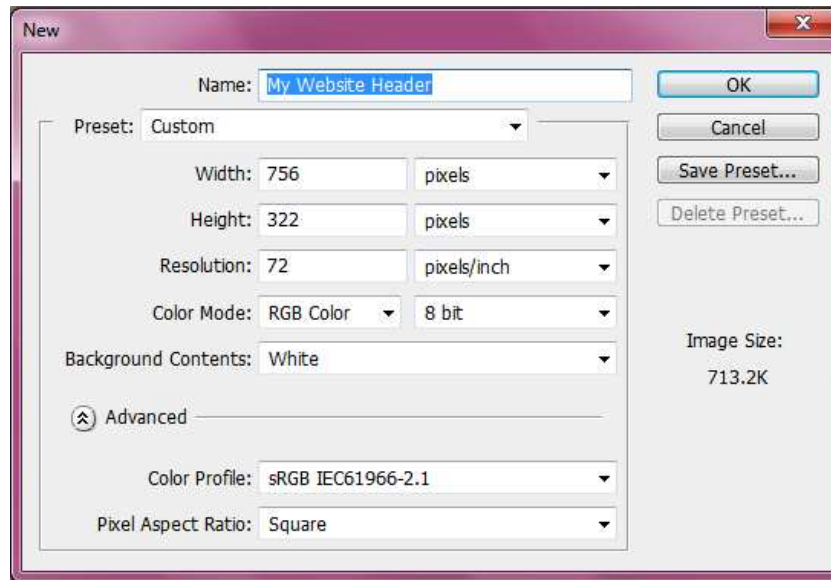◎ New image: Just specify the height and width of the image in the 'New' dialog:

IMAGE SCALING AND DOWNSAMPLING

- ◎ If you already have an image (especially a photograph) you will need to change its size to fit your website.

- ◎ Always do the downsampling using an image manipulation application instead of relying on the browser (specifying the height and width attributes).

- ◎ In Photoshop all the downsampling can be done in the Image>Image Size menu

- ◎ Another option is cropping the image

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IMAGE SCALING AND DOWNSAMPLING

Change image dimensions while keeping the aspect ratio. You can change it using exact pixels or percentage of reduction.

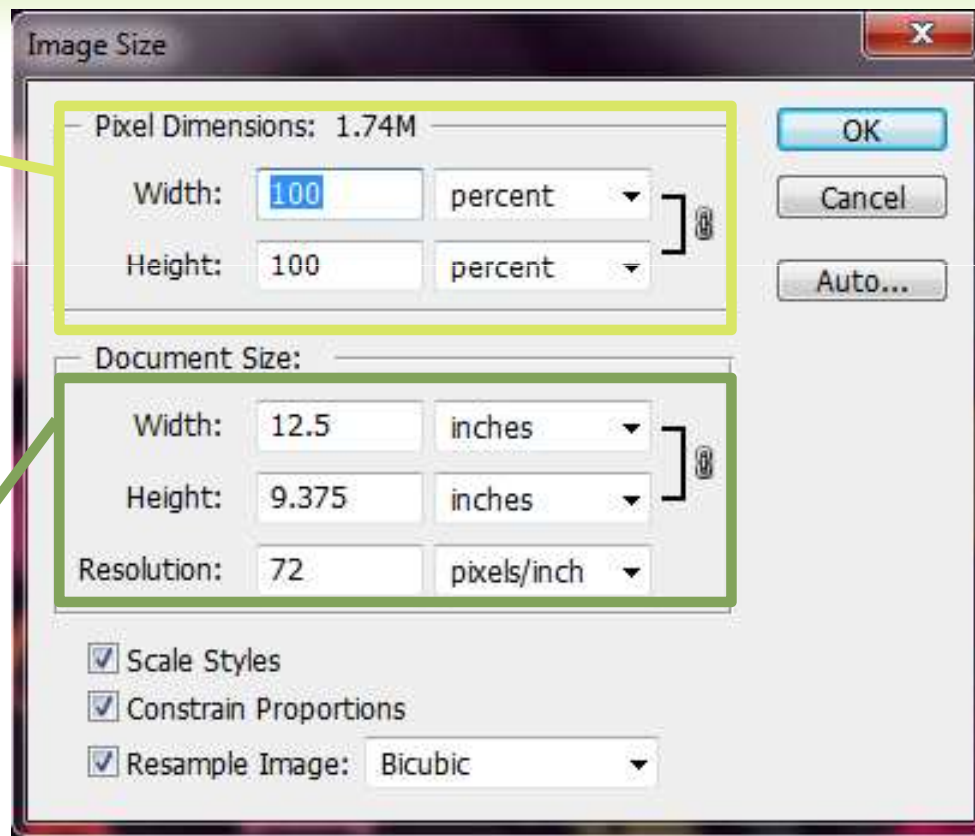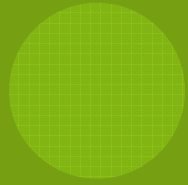Change the document size (increases the empty area or crops the image).

Image Size

Pixel Dimensions: 1.74M

Width: 100 percent

Height: 100 percent

Document Size:

Width: 12.5 inches

Height: 9.375 inches

Resolution: 72 pixels/inch

OK

Cancel

Auto...

☑ Scale Styles
☑ Constrain Proportions
☑ Resample Image: Bicubic

IMAGE FILE SIZES

◎ With the advent of internet speeds you would think that image file sizes don't matter: wrong.

- ⊙ Some users may still have slow internet connection.

- ⊙ Large image sizes would take up the bandwidth of your website that has been allocated by the hosting service.

◎ To reduce the image file size:

- ⊙ Quality vs. size

- ⊙ JPEG vs. Gif or PNG

 - ○ RGB vs. Indexed

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COLOR PALETTES

◎ Each pixel has a color depth that is defined by the number of bits it uses to store its color:

- ◉ 8-bit pixel (1 byte) stores 256 colors (indexed color)

- ◉ 24-bit pixel (3 bytes) stores 16 million colors (RGB-truecolor)

◎ The choice whether we use indexed color or RGB depends on the picture itself:

- ◉ Photographs (especially landscapes) usually require the full selection of RGB colors.

- ◉ But digitally designed images can almost always be adjusted to use indexed color.

COLOR PALETTES

◎ Indexed Color

⊙ The palette is limited to a maximum of 256 colors.

⊙ Not as restrictive as it sounds (turns out, you don't actually need the whole 16 millions colors.)

⊙ In Photoshop: File > save for web

        or: Image > mode > indexed color

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COLOR PALETTES
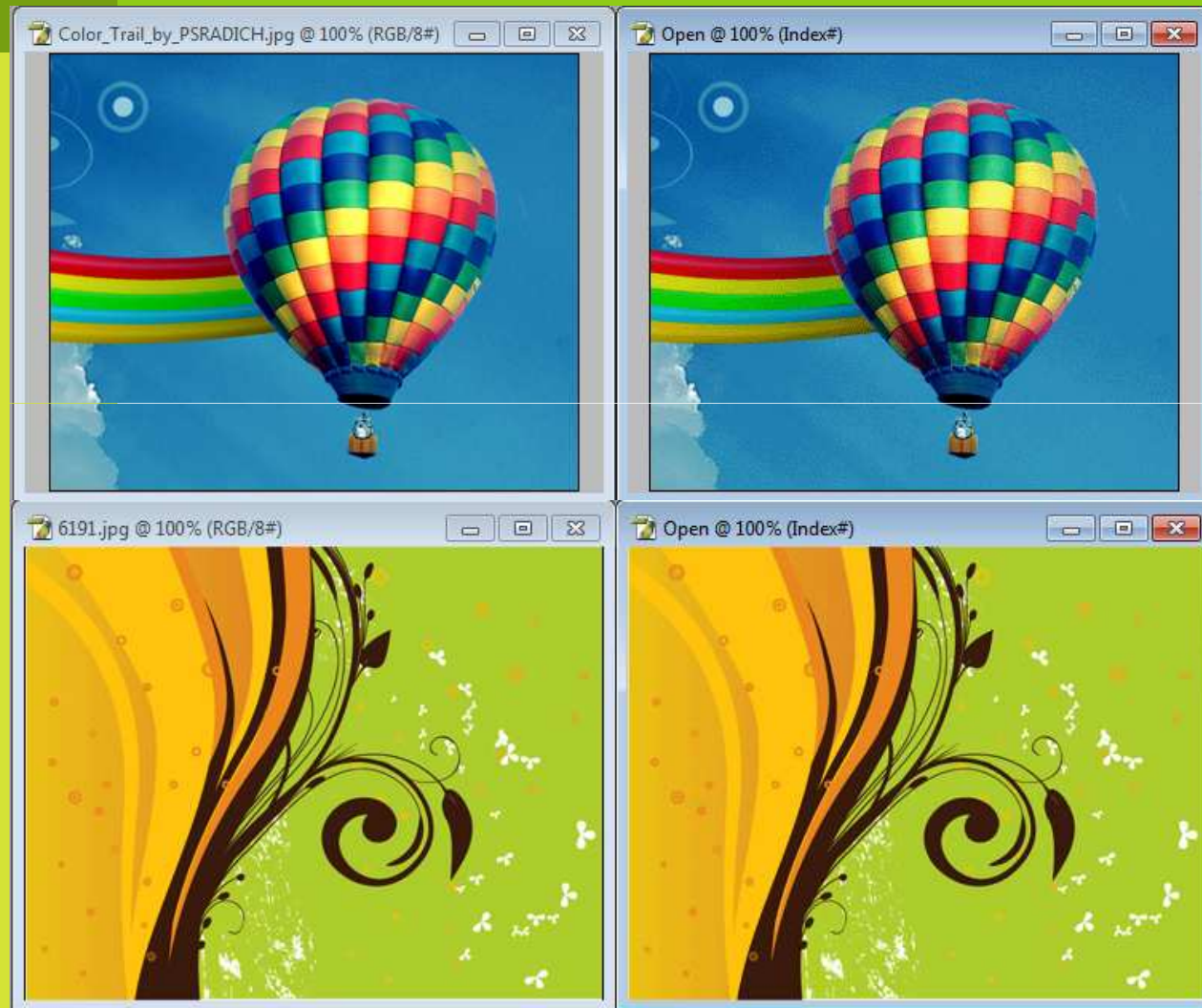
# IMAGE FILE FORMATS

◎ When you 'Save As' an image in Photoshop you are presented with many image formats.

◎ The most common and useful in web design are:

  ⊙ JPEG   (.jpg)

  ⊙ GIF   (.gif)

  ⊙ PNG   (.png)

IMAGE FILE FORMATS: JPEG

◎ **Joint Photographic Experts Group**. Pronounced *jay-peg.*

◎ Most common image format.

◎ Loses quality when edited many times: good for final distribution of the image.

◎ Can represent the whole RGB color space (truecolor).

◎ MIME type: *image/jpeg*

◎ Relatively large file size.

◎ Use it when you need a high quality image with many gradient true colors and smooth edges (e.g. photographs)

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JPEG QUALITY SETTINGS
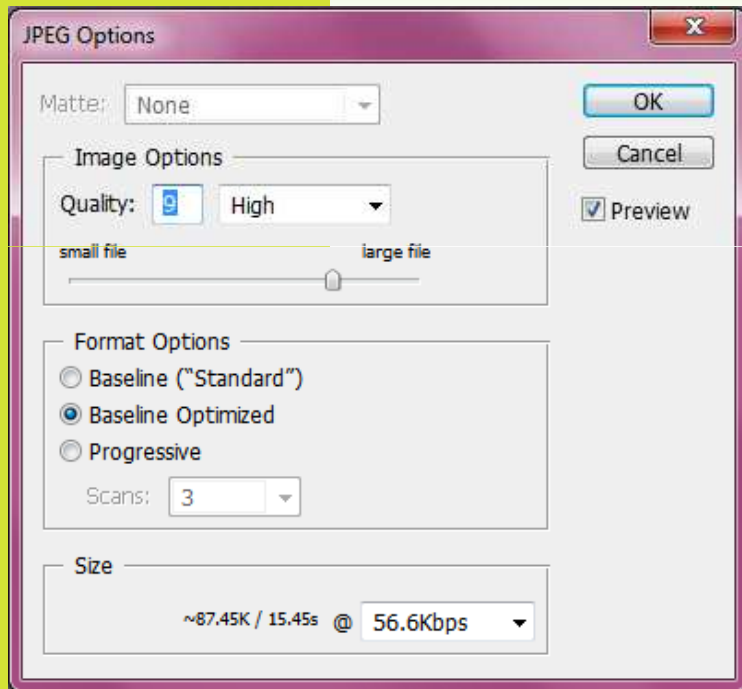
- When saving as .jpg you'll be presented with the quality dialogue.

- Usually there is no big difference between 'Maximum' and 'High' or 'Medium' quality except the increase in the image size:

  - Conserve the image size while keeping adequate quality.

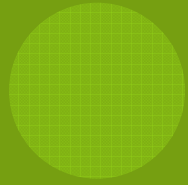- In Photoshop: use "save for web" to preview the results at different settings.

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IMAGE FORMATS: GIF

◎ Was introduced by CompuServe in 1987.

◎ Indexed color palette.

◎ Supports transparency.

◎ Supports animation.

◎ Small size images.

◎ MIME type: *image/gif*

◎ Use it when you need transparent images with few distinctive colors and sharp edges. Or when you need an animated picture.
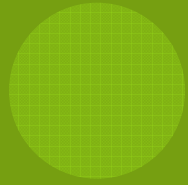
IMAGE FILE FORMATS: PNG

◎ **P**ortable **N**etwork **G**raphics

◎ Was created as the free, open-source successor to the GIF.

◎ Can represent the whole RGB color space.

◎ Supports transparency.

◎ Supports semi-transparency (enabled using JavaScript in web browsers.)

◎ MIME type: *image/png*

◎ Good when you intend to edit the image often.

◎ not supported by IE6 or earlier browsers.

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PNG: Semi-Transparency

see?

VECTOR VS. RASTER(BITMAP) IMAGES
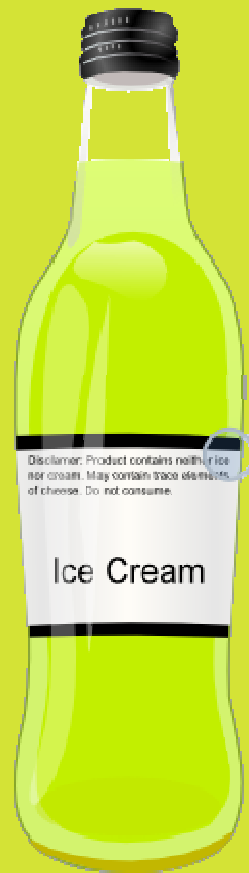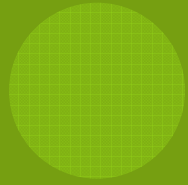
7x Magnification

Vector

Bitmap

◎ Image files holds either **pixel** or **vector** (geometric) data.

◎ The more pixels in raster images the clearer the image but larger file size.

◎ When enlarging pixel images while keeping the number of pixels constant: grainy (pixilated) images.

Image form Wikipedia

Ice Cream

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VECTOR VS. RASTER(BITMAP) IMAGES

Vector Images:

◎ Vector images are composed of geometric shapes (points, lines, curves, etc.) based on mathematical equations.

◎ Advantages:

⊙ High resolution graphics with smaller file size.

⊙ Upon magnification, vector images never lose quality.

◎ Drawbacks:

⊙ Lack ability to show fine details as in real world photographs.

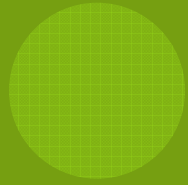AFNAN A. AL-SUBAIHIN

VECTOR VS. RASTER(BITMAP) IMAGES

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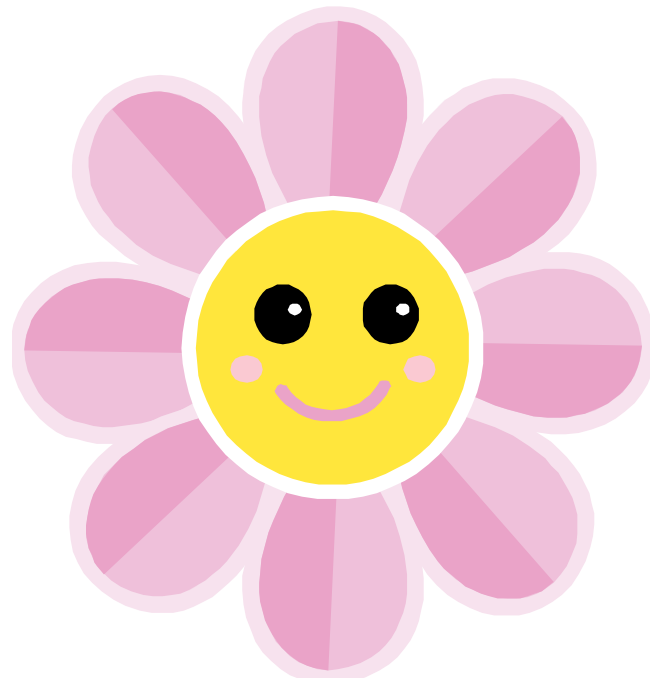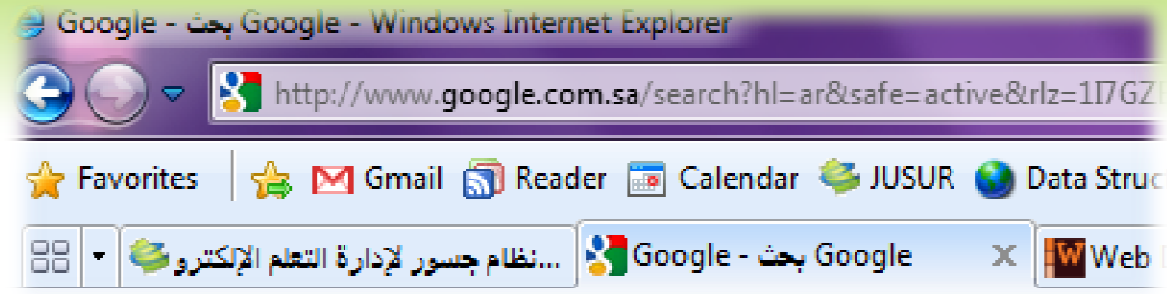
FAVICONS

◎ Enhance the identity of your website using favicons.

◎ Can help people identify your website in a list of bookmarks (especially sighted people)

FAVICONS

◎ Dimensions: 16x16 pixels.

◎ Difficult to design something is such small space.

◎ Start with 32x32 then downsample it.

◎ Use high contrast and very simple design elements.

◎ The image format should be .ico but it is not supported in Photoshop. Use an online converting tool: www.convertico.com

◎ Name the file *favicon* and place it in the root folder.

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MULTIMEDIA

◎ Adding other kinds of multimedia (other than images) can give your website an exciting hectic look.

- ◉ Use multimedia sparingly (e.g. no more one video per page.. etc.)

- ◉ Trade-off between quality and bandwidth usage.

- ◉ Offer the visitor the choice of plain HTML view.

Multimedia: Embedding

◎ You can use these tags depending on the nature of what you intend to embed:

⊙ <Object> tag

⊙ <iFrame> tag

⊙ <script> tag

EMBEDDING IMAGES

- ⊙ You can show the image in your website either by:

  - ○ The <img> tag

  - ○ Specifying it as a background (using CSS)

    Example:

    ```
    <div style="

        background-image:
        url(/images/somefile.gif);

        background-repeat:repeat;">

    </div>
    ```

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EMBEDDING VIDEO FILES

◎ Supported file formats:

⊙ **.swf** files - are the file types created by Adobe's Flash program. (requires the flash plug-in in the user's browser)

⊙ **.wmv** files - are Microsoft's Window's Media Video file types.

⊙ **.mov** files - are Apple's Quick Time Movie format.

⊙ **.mpeg** files - are movie files created by the Moving Pictures Expert Group.

◎

```
<embed src="somefilename.swf" width="550"
height="400">
</embed>
```

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RESOURCES

- ◎ http://www.webdesignbook.org/Book/Tips/graphics.html

- ◎ http://en.wikipedia.org/wiki/Image_file_formats

- ◎ http://en.wikipedia.org/wiki/Raster_graphics

- ◎ http://en.wikipedia.org/wiki/Vector_images

- ◎ http://en.wikipedia.org/wiki/Comparison_of_graphics_file_formats

- ◎ http://en.wikipedia.org/wiki/GIF

- ◎ http://en.wikipedia.org/wiki/Image_scaling

- ◎ http://www.w3schools.com/flash/flash_inhtml.asp

- ◎ http://www.tutorialspoint.com/html/html_embed_multimedia.htm

- ◎ http://www.websitebytes.com/articles/multimedia.php

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