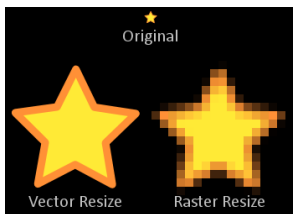# Digital Image Basics
for web and print
2012.04.24

Basics: Outline

+ Raster v Vector
+ Pixels/Resolution
  + Trying to get a higher quality image
+ Proportions
+ File Formats

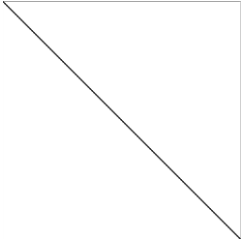## Basics: Vector v Raster

+ Vector v Raster Images

Source: http://virtual-persuasion.blogspot.com/2012/01/raster-or-vector.html

Basics: Terms

+ Pixel
+ Resolution (dpi/ppi)
  + High or low resolution?
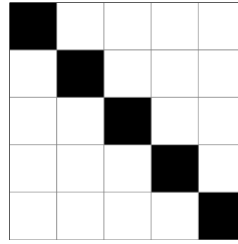   + Ipad 3
    + MIT Tetris Hack

Basics: Increase Image Quality?

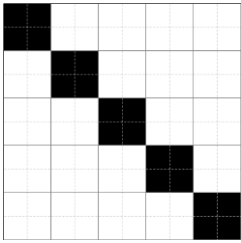+ What will you see if we zoom in on the image below?

Basics: Increase Image Quality?

+ Something like this. Double res of the previous image?

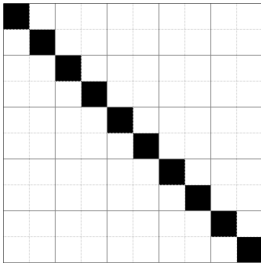## Basics: Increase Image Quality?

+ Something like this. Was quality increased?

Basics: Increase Image Quality?

+ What would higher quality image look like?

Basics: Increase Image Quality?

Basics: Increase Image Quality?

+ Iron law: You can never easily get a high-quality image from a low quality image.
+ (Trying to break this law: Image interpolation programs)

Basics: Proportions

+ Ratio of width to height
  + 1:1 (square)
  + Most screens are either 4:3 or 16:9 (widescreen)
+ Application: Resize this image:

Basics: Proportions

Basics: Proportions

Basics: Proportions

+ In most applications, holding down the shift key will "constrain the proportions."

+ Test by trying to make the image excessively skinny or fat.

Basics: Image File Formats

+ Goal of most formats: high image quality, low file size
  + Different strategies for doing this
  + Data loss

+ Goal: Quality (RAW)

+ Goal: Balanced (JPG)
  + photos

+ Goal: Smallest for Graphics (GIF/PNG)
  + graphics (limited color range)

Basics: Image Rights

+ Make sure you own the rights to any images you use!

Basics: Questions?

Try it: Resize an image

+ Go to Google Images (images.google.com). Search for something and save a large image to the desktop.

+ Go to http://www.pixlr.com and upload the image you just saved.

+ Try some of the following:
  + Make the image much smaller (Image -> Image Size), resave and compare the size.
  + Crop the image, save and compare the size to the original.
  + Crop a small piece. Zoom in to see pixels. Double the resolution and compare.

Break?

Tips: Organizing Image Files

+ Always work with a copy of your images.

+ Copy your images into the same folder as your project before you modify them.

+ Photos
  + 2012.04.24 DCN Image Workshop
  + 2012.04.25 Winning the Lottery

+ Projects
  + 2012.05.01 DCN Presentation
    + Photo 1.jpg (modified)
    + Logo 1.gif
    + PPT.pptx

Tips: Image File Size

+ What can affect file size?
  + Total number of pixels in the image
  + The file format you select (whether it's the right one for the job)
  + The settings for the format you select
    + Including preview images
    + "quality" settings
+ Why does file size matter?
  + Download times
  + Storage space

Images on the web

+ Does pixels per inch matter?
+ Image File Size
  + Larger the image, the longer it takes you to download the file.
  + Connection speed
  + Web images are usually smaller than print images
  + 1MB+ = [way] too big!

Images on the web

+ What not to do:
  + Upload an image that's 4000x3000 and 5MB.
  + Insert it into a web page with this html code (and many pretty editors will do this behind the scenes):
  +
  + What's happening?
  + How to avoid?
+ Tip: Photoshop has a "Save for the web and devices" feature

Images in Print

+ Does pixels per inch matter?
+ Appropriate image size for print?
  + Check with your print shop!
  + If you're printing at home, 600dpi should give good quality, don't go less than 300dpi in most cases.
  + Do a test to see!
+ Tip: Set the size and resolution first, then place into layout.
  + Use an image editing desktop app (Photoshop, GIMP or Irfanview)
  + Very few online tools allow you to set the print resolution.

Images in Print
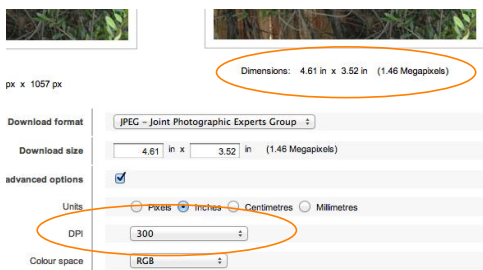
+ Ensuring all images are appropriate quality
  + Check space (in in) for the pic?
  + Use an image-editing program (e.g. Photoshop) to crop the photo to the right proportions.
  + Use "Image" -> "Image Size" and uncheck "re-sample image".
  + Change the dimensions to the ones you want.
  + Check the resulting resolution.

Try it: Print Resolution
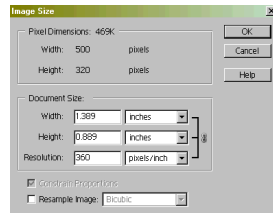
+ Go to: http://www.thirdlight.com/converter/
+ Upload your image from Google.
+ Click "Resize, Crop or Convert…", then check "Show advanced", change units to inches.
+ Change the DPI setting and watch the print dimensions.
+ What's happening here? Is your image good enough for a ~4in image on:
  + The web?
  + Printing in a brochure?

Try it: Print Resolution

Resources

+ Many I haven't included
+ Free online image editors
  + Flash
    + http://www.photoshop.com
    + http://pixlr.com
    + http://www.sumopaint.com
    + http://fotoflexer.com
    + http://www.imageeditor.net/free_online_image_editor.asp
  + Non-flash
    + http://snipshot.com/
    + http://www.phixr.com
    + http://www.picture2life.com
    + http://pixenate.com/

Resources

- Free offline image editors
  - Start->All Programs -> Accessories -> Paint: Microsoft Paint (Windows Vista/7 version can do very basic stuff)
  - http://paintbrush.sourceforge.net/: Paintbrush.app (Mac OS)
  - http://www.gimp.org: GIMP (free and open source which is awesome but a bit of a learning curve, available for Mac or Windows)
  - http://www.irfanview.com/: Irfanview (Windows)
- Most powerful: Commercial (industry standard) tools you can use
  - Adobe Photoshop (different versions have different features)