# Assignment: Explore Your Camera: 1 of 3

Objective: By taking the time to learn the parameters of your camera, you will have greater control over situations you encounter while shooting. You will learn the acceptable limits of your camera. Every camera you own or use should be tested and explored.

set up a tripod -attach camera -shoot

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**A)** **Image parameters (when Burning the CD each parameter should be placed in a folder titled with the parameter and the files should be renamed to the parameter photographed)**

1) shoot the same image with the sharpening on high, low, no sharpening. or your cameras equivalent

2) shoot the same image with color tone, saturated high, medium, low or your cameras equivalent

possible image parameters, contrast, saturation, hue, color, b&w, sharpness

Go To: http://www.dpreview.com Explore your camera read the review.

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**B)** 3) shoot one image at each .jpg compression -Place in a folder titled: compression

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**C)** 4) shoot using aperture preferred -Place in a folder titled: AP
-use the image compensation to over and underexpose your image .5, 1, 1.5, 2 next -.5, -1, -1.5, -2
-create a contact sheet showing the compensation and print the contact sheet

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5) can you shoot a multi-exposure on one frame, with your camera?

6) what other options does your camera have? Test the additional parameters.

7) type up a summary of your findings.
include, Camera type, sensor resolution, lens used (ex: 50mm 1.8 AF),
color space, maximum shutter, minimum shutter

Turn in envelope containing: contact sheet, CD and conclusion. Label envelope:
-Name, project, class day and time, date, email and phone#

Size Matters
By Sally Wiener Grotta

The size of the pixel and the overall size of the sensor are key cost factors in digital camera design.

The bigger the photosensitive area of a pixel, the more light it can collect and convert to electrons. But bigger pixels take up more space on a sensor, reducing the number of pixels that a given size sensor can hold--i.e. its resolution potential. On the other hand, small pixels may allow for higher resolution on the same size sensor but their charge capacity is less, which means they are less photosensitive. In addition, packing more pixels into the same size sensor also increases the potential for noise.

The smallest CCD pixel feasible has been demonstrated at 2.5 microns square. But that's for digital video and not still digital cameras. Note that the dynamic range of an image is affected by the pixel size and design. A digital still camera requires at least 10-bit dynamic range, meaning it needs slightly larger pixels of present designs. Currently, the smallest pixel size for digital cameras is about 3.3 microns in a CCD and about 4 microns for CMOS. The popular Sony 3.3MP sensor has a 3.45-micron pixel. Many other consumer digital cameras have pixels averaging around 5 microns. The new Kodak 16.6 MP CCD has a 9 micron pixel, which delivers higher dynamic range. But the CCD itself is very large. Some other professional sensors have 12 micron pixels or even larger.

Manufacturers must consider not only how the size of the pixel will affect the quality of the sensor, but also how the size of the sensor relates to how many chips can be cut from a single silicon wafer. Literally thousands of Philips' 1/4" VGA CMOS sensors can be cut from a single 8" wafer. On the other hand, only 5 of Kodak's 16.6 MP 38.6 x 37.8 mm CCDs will fit on a 6" wafer, and this results in waste of much silicon wafer area. (Visualize arranging five square or rectangular chips in row-column format completely within a circle and you'll see the wasted areas).

In addition, larger sensors require larger camera lenses and a larger overall camera, both of which increase cost. To summarize, image sensor design factors such as their size and number of pixels, light sensitivity, and resolution affect overall camera cost and size.