

IMAGE OUTPUT

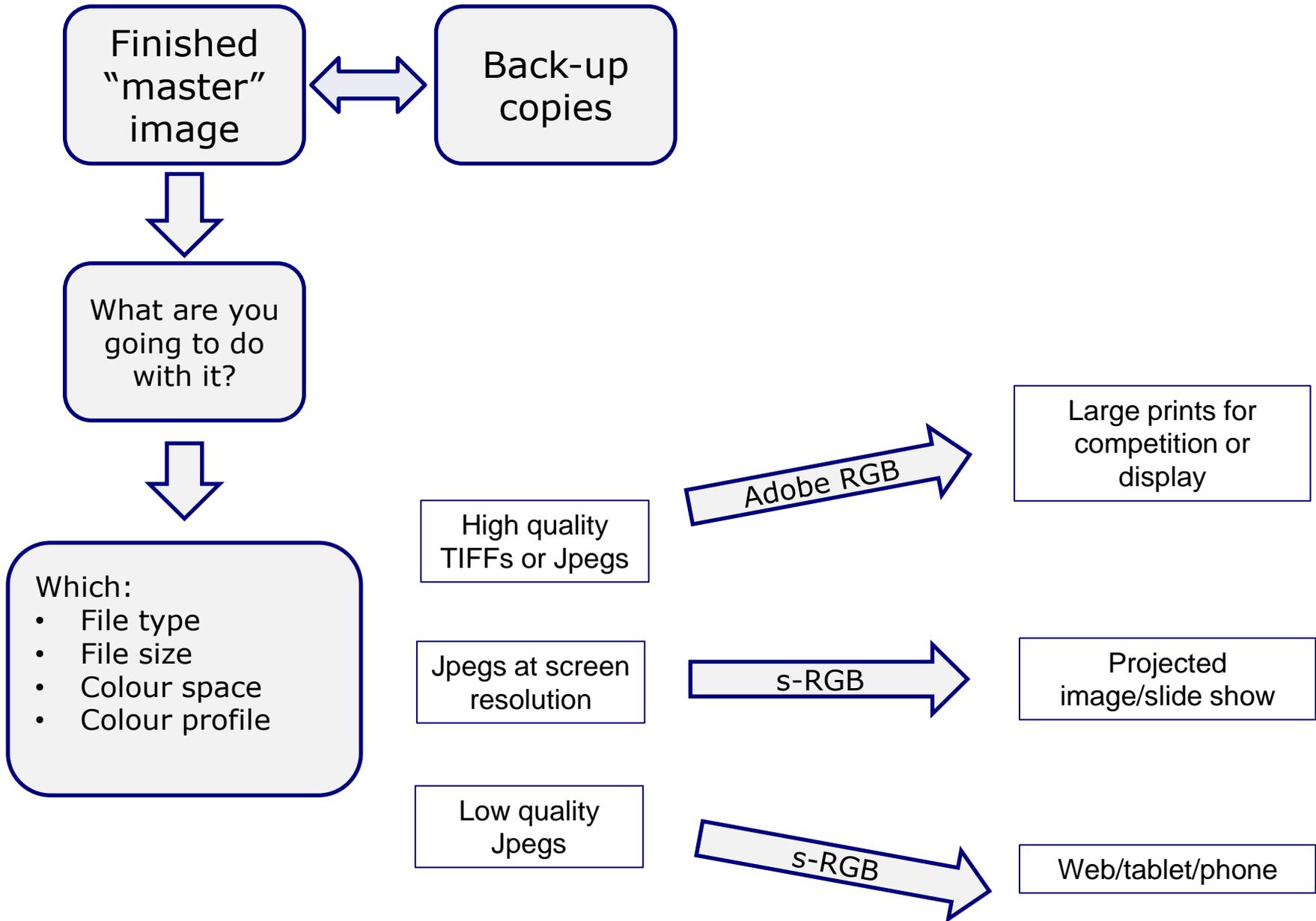
Bob Breach



So you have spent time
adjusting your great image
to its optimum state

-

What do you do with it?



Finished "master" image

Back-up copies

What are you going to do with it?

- Which:
- File type
 - File size
 - Colour space
 - Colour profile

High quality TIFFs or Jpegs

Jpegs at screen resolution

Low quality Jpegs

Adobe RGB

s-RGB

s-RGB

Large prints for competition or display

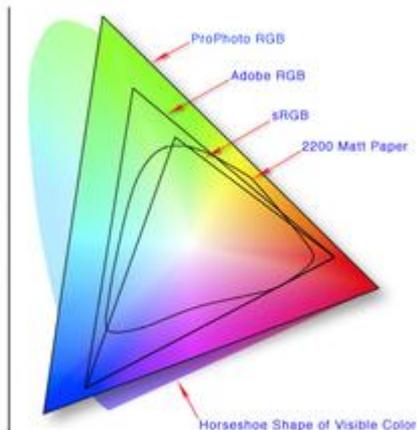
Projected image/slide show

Web/tablet/phone

MASTER IMAGE FILES?

- Ideally:
 - Take and store master image as edited raw file using Adobe RGB
 - Can then “develop” any number of other copies in different formats
- Alternatively
 - Keep one master copy in highest quality format available (TIFF or high quality jpeg)
 - Make other output files as necessary according to need

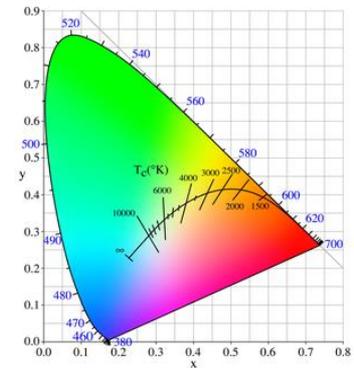
WHAT COLOUR SPACE?



- Colour space defines the range of colours that can be displayed
- 2 main types
 - Adobe RGB: larger space optimised for printing
 - s-RGB: smaller space optimised for screen
- Best to set camera to take Adobe RGB (largest) and modify to s-RGB later if needed

COLOUR PROFILES

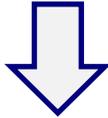
- A major subject in its own right and very complex
- Each piece of kit can reproduce colour slightly differently
- Photo editing software often allows sophisticated colour adjustment but useless if screen does not match printer (or projector)
- Ideally camera, monitor, printer and each paper, (and projector) should be colour calibrated so that they match



COLOUR PROFILES BASICS

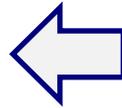


Adjust colour space and balance in editing software

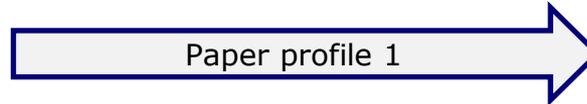


Monitor profile sets “standard” colour reproduction

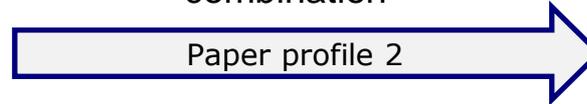
(But will be influenced by lighting and monitor position)



Camera colour space (adobe RGB)



Paper profile tries to “match” monitor colour to printer/paper combination



MINIMUM RECOMMENDED

- Colour profiling
 - Monitor
 - Device available to borrow from SPS
 - Make sure position and lighting good when setting up
 - Printer/paper
 - Manually adjust- fiddly and not accurate
 - Can download free “standard” profiles for some papers
 - Best - use specialist service (free - £10)
- Best to standardise on a few papers you like
- Make sure the profiles are set up properly in your software and changed when you use different paper

PRINTING

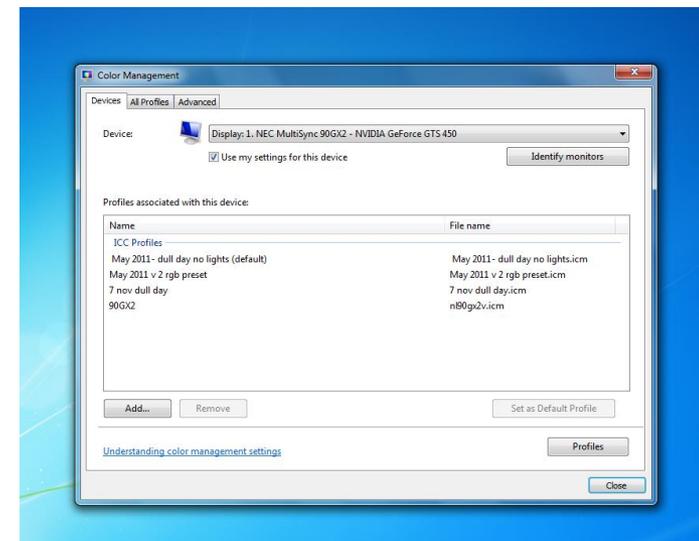
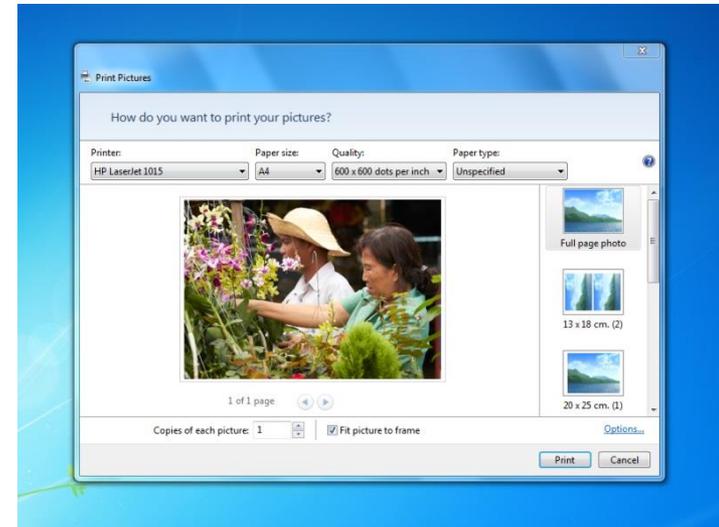
- Making high quality prints can be a complex process
- Requires decent printer, inks and paper
- Plus three main technical pillars:
 1. Proper set up of software and printer drivers
 2. Interpolation - optimising available pixels to print size
 3. Colour profiles- getting the colour "right"
- The overall "look and feel" of the print can be significantly enhanced by choice of paper
 - Chris Roberts talk described these
 - A personal choice but to minimise effort and need for separate profiles best to standardise on a few you like

An alternative is to use good quality commercial printer

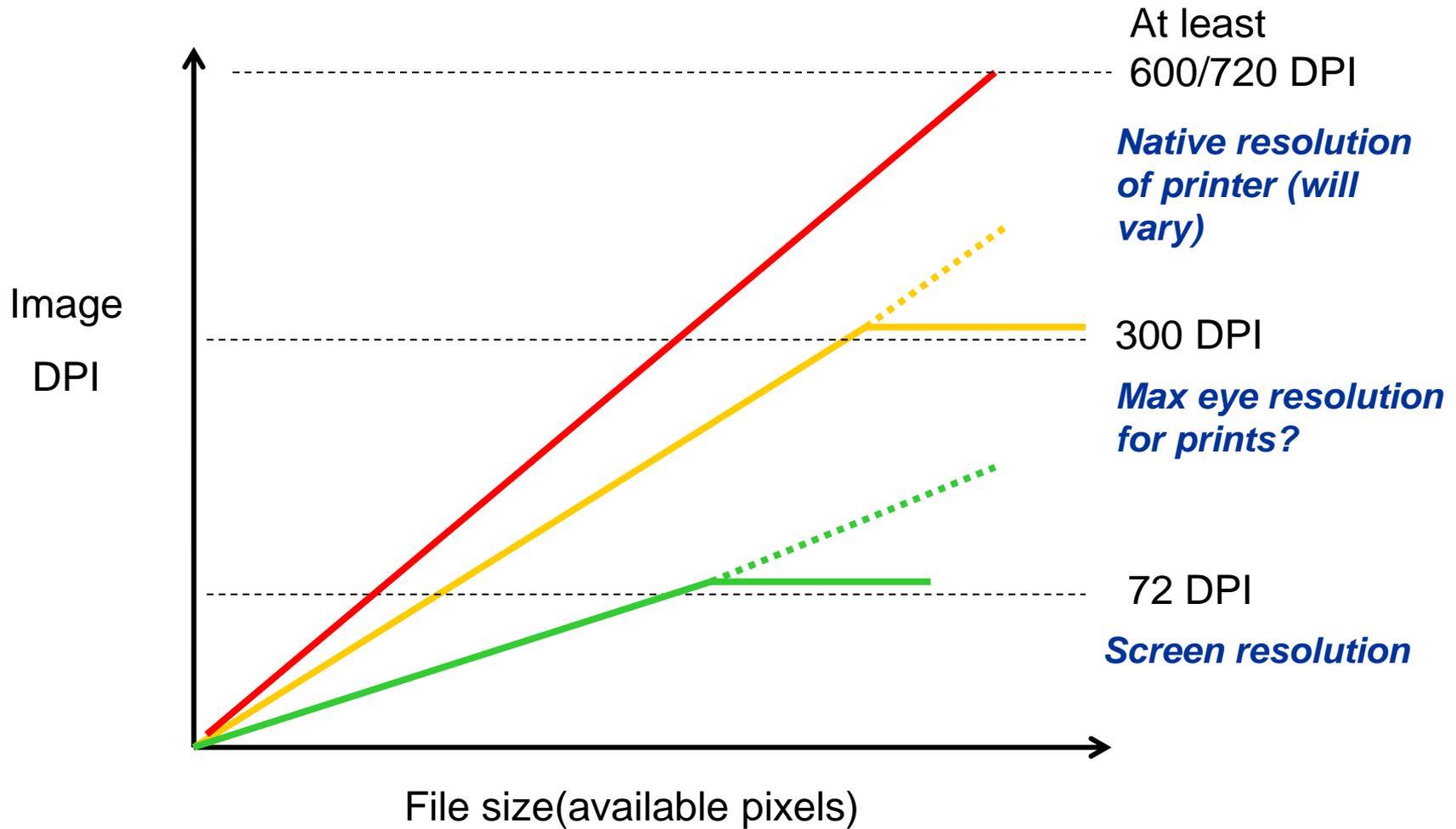
PRINTER PROGRAMMES

- Many to choose from
 - Better raw processors
 - PS Elements/CS
 - Windows free software
 - Specialist printing programmes
- Same principles
 - Decide on paper type and size
 - Decide on image size on paper
 - Decide on DPI
 - Set up suitable profiles

But always switch off printer driver in favour of the print software driver



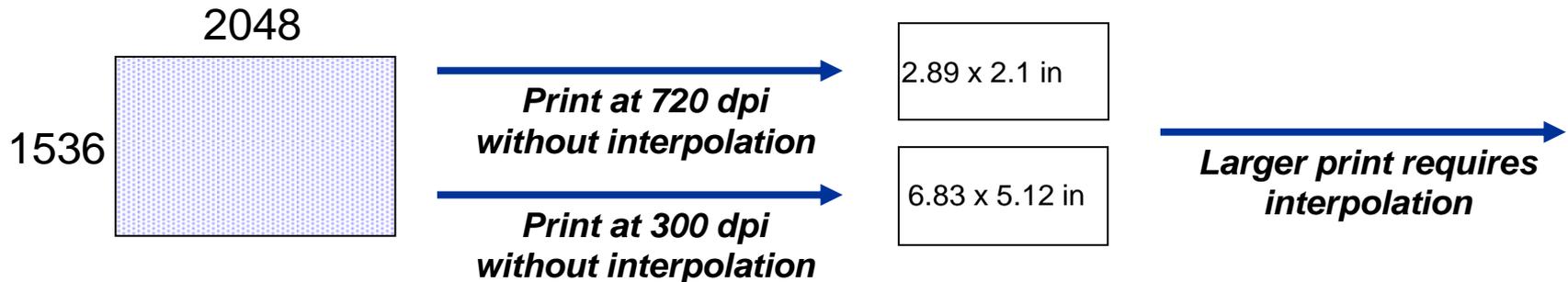
DPI AND FILE SIZE



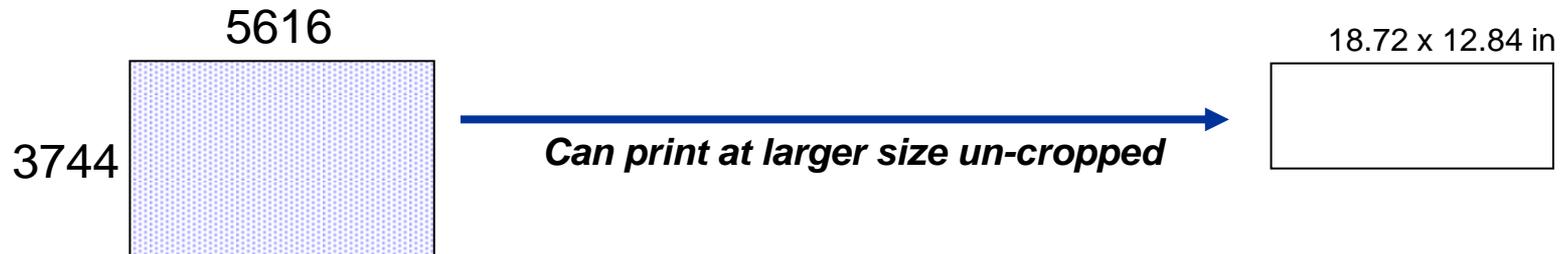
For most decent sized prints there are not enough pixels so software has to create extra ones (interpolate)

AN EXAMPLE

Small 3Mp camera without any cropping



Canon 5D Mk 111 (23 Mp)



Likely that most images will need to be interpolated for printing at large size particularly if cropped

INTERPOLATION

Creating extra pixels by informed guesswork



Uses a variety of complex mathematical formulae with various names e.g. bicubic interpolation

DIFFERENT TYPES OF INTERPOLATION



Zoom (no interpolation)



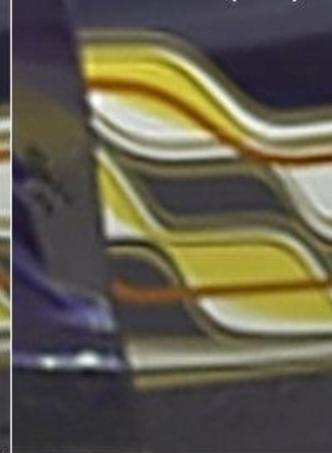
CS5 bicubic smoother



QU - Hybrid



QU - Fusion (new)



MOUNTING

- Mounting prints depends on your taste
 - Cut-out frame (make or buy)
 - Mount directly on board
 - Borders?
- What colour? Most judges tend to prefer white or dark grey/black. But your choice!
- Think about position of image in frame - central or offset? Small or large border?

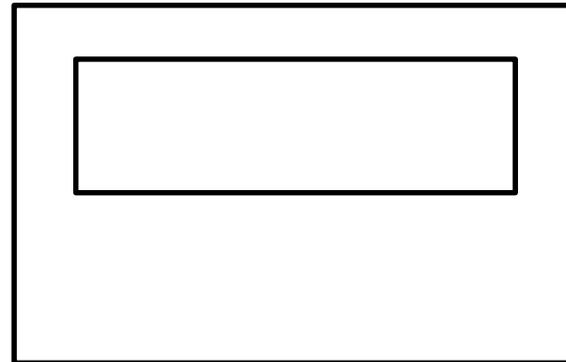
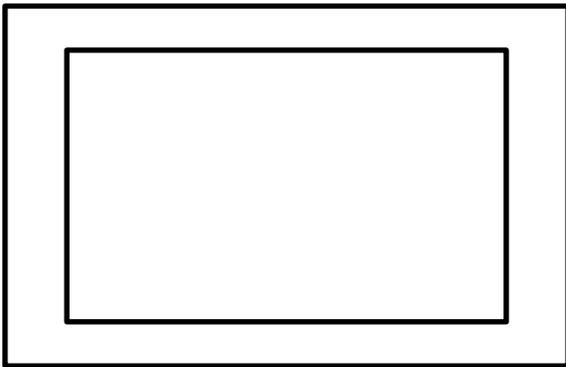


IMAGE OUTPUT FOR SCREEN

- Best to use jpeg
 - Lower quality jpegs often OK since reduce file size and/or slide show processing time
 - Use s-RGB colour space
- Think about aspect (pixel) ratio needed for final output to TV or projector
 - Most programmes allow you to save images in different aspect ratios
 - Most TVs now 16/9 (1366x768 pixels or higher)
 - Society projector 4/3 (1400x 1050 pixels)
- Can use different colour backgrounds but be careful about edges- if in doubt use black as background (SPS require for competition)
- Sometimes projected images benefit from frame or border around

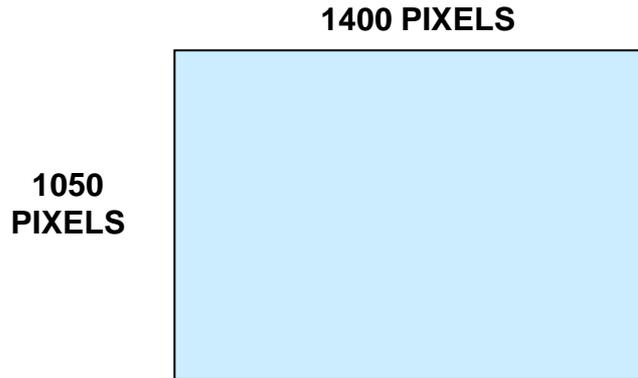
PRINTING WITH PHOTOSHOP ELEMENTS

Set up will vary between software and software version and printer that are used

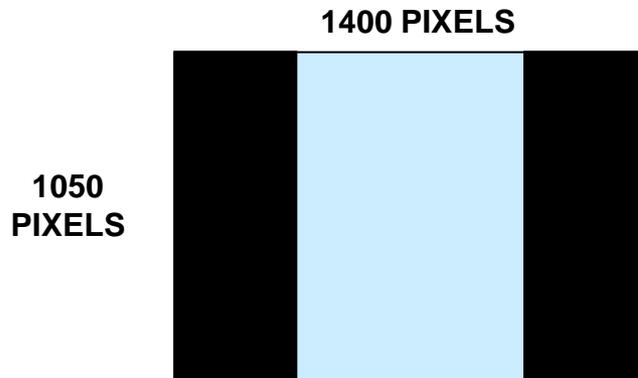
- File/Print
- Select printer type
- Select printer settings/change settings
 - Set paper type, quality and size
- In other options/colour management make sure that "PS manages colour" is chosen and also in printer settings switch off colour management

For more details on Photoshop CS printing see notes by David Eaves

PIXELS FOR PROJECTION (4x3 SCREEN)



- Full frame images
 - Image/image size/pixel dimensions



- Cropped images
 - Set background to black
 - Set image size as above using maximum dimension first e.g. 1050 for portrait
 - Image/canvas size/size/pixel dimensions

MAKING BORDERS AROUND IMAGE

- Use image size/canvas size linked with appropriate colour for background
- Example using DPI image for competition which is less than 1400x1050 pixel and want to make 3 pixel white border
 1. Image size – set as 3 pixel less than the required dimension for projection (e.g. if 1050 pixel square then set at 1047 x1047 pixel)
 2. Canvas size – set as 1050 x 1050 and background white
 3. Canvas size – set as 1400 x 1050 and background black
- Alternatively use “stroke tool”
- Same approach can be used for prints and any combination of borders around print but if complex best to work out on paper first