

Software specification for *iMedia Unit 1 Digital Graphics* = **Serif PhotoPlus**

2 Use the tools and features of a digital image manipulation program to edit and image

2b Save and close the image in an appropriate format for print and the web



Formats for print and web



Fact file 1 - Format your work for print

Preparing images for print involves a number of factors, depending on whether output is to a desktop printer, or to a professional print shop. Print resolution is much higher than the resolution needed for screen.

Desktop printer

For your school or home desktop printer, which could be laser or ink jet, the optimum resolution is typically 300 to 400 dpi – but check with your ICT teacher.

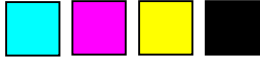
Professional print shop

For professional print output you should always consult the company to find out their exact specifications. For professional print jobs it may be up to 8000 DPI (dots per inch), sometimes also measured as LPI (lines per inch). A print shop prepares image files for printing, converts them to film, and then transfers the film to colour plates. The plates are used with screens to transfer the inks to paper. The International Color Consortium (ICC) has developed a cross-platform colour management system that is widely used throughout the industry.

Paper quality

Outcomes also depend on paper quality – will newsprint or glossy coated stock be used, for example? Lower grade papers need larger dots and fewer lines per inch because the ink bleeds. Desktop printers reproduce colour through dots of cyan, magenta, yellow and black ink. You will need to select different setting if printing onto acetate, glossy photo paper, specialist card or ordinary printer paper, for example. What are the different settings on your printer?

CMYK colour mode



This is a colour process that uses **Cyan, Magenta, Yellow and Black** (known as **Key**) colour variables for offset printing using process inks. **CMYK** is known as a **subtractive** colour process because printing inks **absorb** light. When printing using this model the more ink that is applied, the darker the colour. All four inks combined produce black; while white is created simply by not adding any ink at all. Subtractive colours subtract from white to create other colours, and the subtraction of all the maximum colour values makes black. In a CMY image subtracting 100% cyan, magenta and yellow results in black. When 'prepping' for high-end professional printing the image is separated into four different plates, one for each colour. Serif programs let you choose whether to make a composite copy (one page), or colour separations (4 pages) for sending the print job to an image setter or plate setter.

Choose the right colour mode

To print in high quality colour professionally you must convert your artwork to CMYK colour mode, but because this format allows fewer colours than RGB, the colours in your image could be dramatically altered. To avoid this it is advisable to choose the preferred colour mode at the very start of your project if professional printing is planned.



Activity 1 - Save for print.

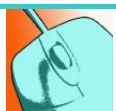
Open the editable SPP file of the CD cover that you designed in Part 2a. Set the colour mode to CMYK on the Colour tab and export the graphic as a JPEG at 100% quality setting: File > Export Optimiser. Save your file as *CDcover_printXXX* (replace XXX with your own initials). Make a note of the image size, resolution, colour mode, file format and file size on the *Print or Web?* activity sheet in the Extras section. Save this work as *printorwebXXX*.



Fact file 2 - Resolution and DPI

Print quality is measured in DPI (dots per inch), or in the industry it can also be measured in LPI (lines per inch). If you know that your graphic must have a resolution of 300 dpi, and you want the image to measure three inches across, it will be 900 pixels wide. To calculate this, multiply the resolution by the number of inches you want to cover.

Resolution X inches across = number of pixels wide.



Activity 2

Open your *printorwebXXX* document and use the formula in Fact file 2 to calculate the dimensions in pixels for a flyer measuring 8 inches x 5 inches at a resolution for print of 600 dpi. Save your work.



Fact file 2 - Format your work for the web

Best possible quality with small file sizes

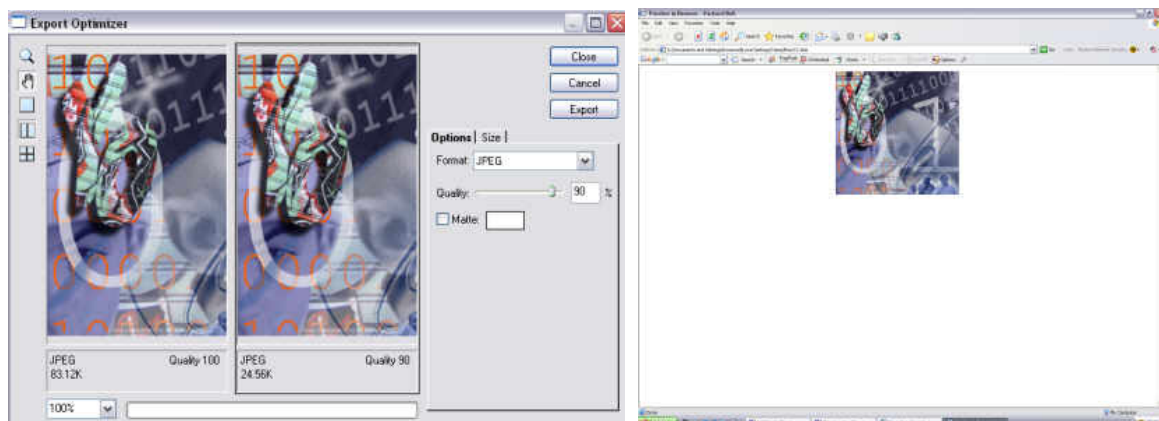
When publishing images on a web site, using them in a multimedia presentation, or sending them by email, it is essential to consider how to achieve the best possible graphic quality with manageable download times and file sizes. Visitors to your website will move on fast if download times for graphics are too long, while large images clog up email inboxes. Images can also cause problems when stored on networks because of the amount of space they require if not optimised. The *Export Optimiser* in Serif PhotoPlus makes this process quite straightforward because it allows you to preview the effect of reducing resolution on image quality. For publishing on the web your goal is to maximise quality, while minimising file size.

The three main options for achieving this are:

- ☆ Choose a screen resolution of 72 – 96 DPI/PPI (pixels per inch) when starting a new web graphic
- ☆ Reduce the image dimensions before saving your editable file in a universal file format such as JPEG or GIF: choose *Image Size* from the *Image* menu, check that the *Maintain aspect ratio* box is selected and type in either the new height or width. Click *OK*.
- ☆ Use the *Export Optimiser* to reduce the quality, keeping an eye on the effect it has on the graphic in the *Preview* window.

The Export Optimiser

Select *Export Optimiser* from the *Edit* menu. On the *Options* tab choose a format from the drop down menu – JPEG and GIF are the most commonly used types for bitmap images. You can also reduce picture dimensions at this stage on the *Size* tab. The left margin of the dialog box offers *Single*, *Double* or *Quad* display viewing options. Click on the viewing options to compare picture quality at different settings, and with different file formats and sizes. Click on a preference to select it, and then on *Export* to save your work. Each file format has different settings: the screenshot shows JPEG format and has a small optimized file size of less than 25KB, compressed from over 80KB with a 90% Quality setting. When JPEG is selected you can adjust image quality as a % with a slider.

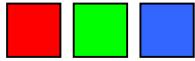


Export Optimiser

Preview in Browser

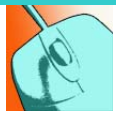
For publication to the web it is essential to preview your work in different browsers. Serif PhotoPlus allows you to do this easily with the *Preview in Browser* command on their *File* menu.

The RGB colour model



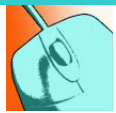
This is a colour process using Red, Green and Blue colour variables geared towards on-screen imaging. This is the native format for images created by digital cameras or scanners. Each of the three colours can have a value ranging from 0 to 255, which when multiplied together gives 16.7 million colours. RGB is described as an additive process because the monitor produces an image by mixing light via combinations of the three primary colours. Additive colours add together over black to create new colours: adding 100% red, green and blue results in white.

For output to electronic publications choose the RGB colour mode when you start to design your artwork. Keep the default Serif screen resolution setting of 96 dpi and reduce image dimensions if necessary to achieve optimum results.



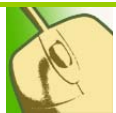
Activity 3 - Save for web or screen

Open the editable SPP file of the CD cover that you designed in Part 2a again. Set the colour mode to RGB on the Colour tab and make the image size smaller e.g. 300 pixels x 300 pixels. Export the graphic as a JPEG again, but select a Quality setting that reduces the file size to less than 50 KB using the Preview feature of the Export Optimiser on the File menu to make sure the image quality is fit for purpose. Save your file as *CDcover_webXXX* (replace XXX with your own initials). Open your *printorwebXXX* document again and make a note of the image size, resolution, colour mode, file format and file size. Save your work.



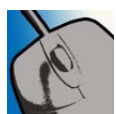
Activity 4

Open your *printorwebXXX* document again and use the formula in Fact file 2 to calculate the dimensions in pixels for a web banner measuring 800 x 500 pixels at a resolution for print of 600 dpi. Save your work.



Self-review

Open the *2skills_evidenceXXX* file you started earlier and complete **Part 2b** of the checklist. How much have you learned about saving images for print? What do you know about saving them for web? Is there anything you are still unsure of? Save your work.



Extras for this section

Activities 1, 2, 3, 4 – Print or Web?

