

Printer Paper Summary

A recent discussion was held on the Microscopy Listserver relating to the use of paper in printers. The following is a summary of these comments as provided by Paula Allan-Wojtas, Agriculture and Agri-Food Canada, Nova Scotia Canada [AllanWojtasP@em.agr.ca]

- ▶ Avery 9x12" Self - Adhesive Laminating sheets, 50/pack. #461253 / 73601. The result is a nice glossy finish, and an image that doesn't fade.
- ▶ Archival Printer Ink. Check the Epson web site for more info about archival inks and printers like the Epson StylusPhoto 2000P. Wilhelm research does the most testing for archivalness of photographic media. They may have some pointers on the best ink-paper combos for light stability. <http://www.wilhelm-research.com>
- ▶ Enclose prints in a polyethylene sheet protector (archival grade)
- ▶ Printer Specific Paper. Stay with the papers recommended for use with the new Epson inks
- ▶ Try Epson's Heavyweight Matte paper It's cheap (\$9/50 sheets from a discount supplier), delivers the Epson long-life guarantee, & it has a robust surface right out of the printer. And beautiful prints.
- ▶ Regarding recent reports of color shift on some Epson papers, Epson determined the shift was from high concentrations of ozone, and not due to exposure to light. Epson recommends Heavyweight Matte or Epson Photo paper for maximum light-fastness.
- ▶ If "Photo Quality Glossy Paper" isn't new, it may be the paper's fault - it's been reformulated to deal with this problem. See <http://www.luminous-landscape.com/1280.htm> & <http://www.wilhelm-research.com/>
- ▶ Printer Settings: make sure that when you print B&W prints, set the printer to "B&W". Colors can appear when "color" is selected, and the color printing mimics B&W
- ▶ Protective Sprays: Luminos (<http://www.lumijet.com>) has a spray called "Imagesheild" to protect prints (\$18/can). Quoting their website: "LUMIJET IMAGESHIELD will become your favorite print protector. It's a convenient ozone-friendly low-odor aerosol spray that significantly improves wet-fastness. In addition to protecting delicate inkjet images from moisture, it also shields images from fingerprints and harmful UV rays. This unique product will not only help extend useful print life, it is totally transparent; preserving the original print surface characteristics. From dead matte to glossy, or from canvas to silver foil, you will never know it is there."
- ▶ Krylon clear acrylic spray: Use many light coats. If you really wet the surface, the paper can become translucent.

▶ Johnson's Paste Wax: It works on some inks and papers, but not all. It does offer some protection against UV. It does protect against moisture, finger prints, dust and scratches. It does change the finish. If the wax causes the ink to smear a fixative spray will usually stop that. Test it for several weeks before putting it on an expensive display.

Additional Comments:

Do not use the printer for archival printing. For long lasting prints use a silver halide digital printer (or dye sub) or traditional dark room processing.

Ink-jet prints have never been designed for long term preservation. The inks used in those printers are made of dyes, which are very sensitive to UV electromagnetic waves present in fluorescent lamps and sun rays. Dyes are not chemically fixed to the fibers, so can cause the smudging problems. The use of a fixative to stabilize the color is only a temporary and partial solution: the polymers sprayed on the surface of the print might partly protect the dyes by filtering some UV rays but doing so, will tend to yellow with time and give a yellowish cast to your images.

Digitizing images is not a complete long term solution either. For best preservation of images, save many copies on CDs, and check them often for deterioration and update the formats as needed to be sure they are always accessible (tiff uncompressed files) and keep it in a cool place, with low humidity (30% RH), or rent a place in a specialized data keeping system firm. ■

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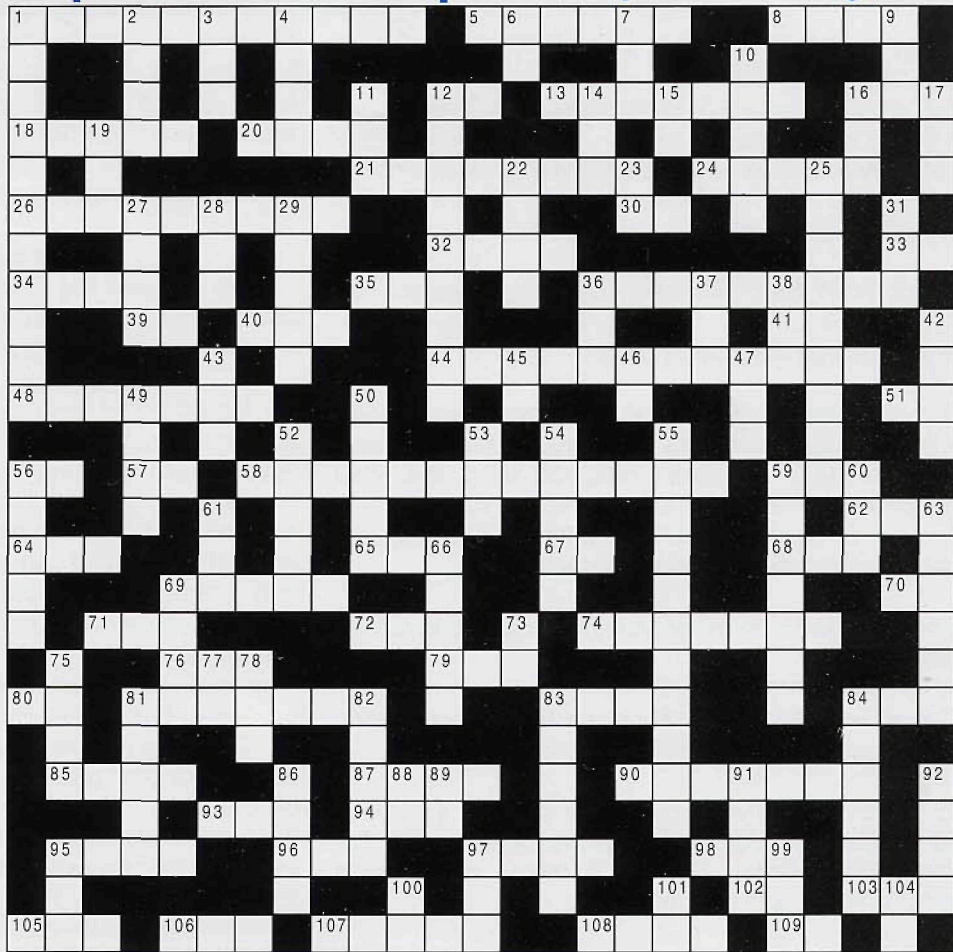
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- Across**
- 1 File size reduction.
 - 5 Security device for software.
 - 8 Equals 8 bits.
 - 12 French abbrev. for megabyte.
 - 13 FFT with lenses.
 - 16 Alternate descriptions of color image.
 - 18 Board that mainly captures images.
 - 20 Eliminates parts of image.
 - 21 One billion bytes.
 - 24 Unwanted signal or background.
 - 26 Enhances all edges.
 - 30 High-performance multitasking graphical operating system by Microsoft, acryn.
 - 32 Used to create Web pages.
 - 33 Program that controls computer, abbrev.
 - 34 1000 GB, prefix.
 - 35 Hard disk with most of controller circuitry built into it.
 - 36 # of pixels with any given intensity level.
 - 39 Unit used to express differences in power, abbrev.
 - 40 Suffix indicating that e-mail is at military location.
 - 41 ___ link is a connection from one hub to another.
 - 44 Way of adjusting the LUT.
 - 48 Any color that has no hue.
 - 51 Opposite of off.
 - 56 Material most often used to make semiconductor devices, abbrev.
 - 57 Character code that tells printer to advance to next line.
 - 58 Decreasing # of gray levels.
 - 59 System for transmitting digital data over ordinary copper phone lines.
 - 62 Used for computer mouse travel.
 - 64 Main communication avenue in computer.
 - 65 Causes fonts to appear smooth.
 - 67 1,048,576 bytes
 - 68 Basis of Mac & Windows OS, acryn.
 - 69 Extend beyond trim marks.
 - 70 Point, abbrev.
 - 71 Computer enclosure for disk or drive.
 - 72 Multi-user conversation conducted over internet in real time, acryn.
 - 74 Collections of selectable colors.
 - 76 Permits two Internet-connected computers to establish reliable connection, acryn.
 - 79Text format that retains formatting info lost in ASCII text, acryn.
 - 80Country code for Canada in DNS.
 - 81Spacing between lines of type.
 - 83Mixture of a color with white.
 - 84Semiconductor chip that retains startup info.
 - 85 Standard software protocol for connecting peripheral devices.
 - 87List of choices.
 - 90 ___ pass filter blurs sharp edges.
 - 93Denotes image resolution.
 - 94Standard way of identifying shared resources.
 - 95Process colors in color printing, acryn.
 - 96Can be used to enhance or de-emphasize periodic structures.
 - 97Human eye can discern 28-30 levels of ___
 - 98Electronic chip camera.
 - 102 Collection of routers under control of a single administrative authority, acryn.
 - 103 Working memory of computer.
 - 105 Screen intensity value mapping, acryn.
 - 106 Lossless data- and image-compression algorithm.

- 107 Line or curve projecting from end of letter form.
 - 108 Ten to the 15th power, prefix.
 - 109 Suffix denoting lower-end models of some Intel microprocessors.
- Down**
- 1 Kernel of numbers multiplied by each pixel and its neighbors in a small region.
 - 2 Opposite of bright color.
 - 3 Ten to the 18th power, prefix.
 - 4 Asterisk character.
 - 6 Operator, abbrev.
 - 7 Uses original value as index into stored table, which then provides derived value, acryn.
 - 9 File format to transfer PostScript data.
 - 10 Popular search engine on WWW.
 - 11 Compression algorithm that reduces file size of bitmapped images.
 - 12 Used in specifying computer CPU speed.
 - 14 If found in a CD, might make it unreadable.
 - 15 Numeric address of machine for Internet.
 - 16 Wavelength of light of color in its purest state.
 - 17 ___ Gain, Occurs whenever ink soaks into paper.
 - 19 Miniature switch often used in computer equipment.
 - 22 To crash.
 - 23 Space usually equal to half the width of em space.
 - 25 Density difference between two tones at their boundary.
 - 27 Transfer info into computer memory from outside device.
 - 28 Use of computer for design work, acryn.

- 29 Standard code for representing characters as numbers.
- 31 Suffix indicating e-mail address at a commercial site in US.
- 36 Color model based on three coordinates.
- 37 ___ net, a command allowing use of one computer as a terminal on another computer thru a network.
- 38 Way of communicating with the computer by manipulating icons & windows with mouse, acryn.
- 42 Complete collection of all characters of given typeface.
- 43 Individual film assembled onto carrier readied for contacting or platemaking.
- 45 Frequency, approx. 0.5 to 2000 megahertz.
- 46 Describes information content of 1.2 MB floppy disk, acryn.
- 47 Resolution measurement for page printers.
- 49 Repeating fill pattern.
- 50 Ten to the 24th power, prefix.
- 52 Interference pattern.
- 53 Computer's smallest unit at information.
- 54 Tonal variation in midtones.
- 55 Image processing computation described by matrix.
- 56 Enhances image principal edges only.
- 59 Discrete electronic pulses to represent data.
- 60 Resolution used when converting a photograph to halftone.
- 61 Delete key on computer keyboard.
- 63 Business that operates on Internet.
- 66 Keystrokes saved as a named computer file.
- 69 Memory space to store one character.

- 73 Programming language word that specifies that different actions are to be performed depending on result of some test.
- 75 Formats in style sheet that indicate paragraph settings, etc.
- 77 Company that verifies identity of individuals & issues certificates attesting that ID, acryn.
- 78 De facto standard for document transfer across platforms.
- 81 Characterized by loss of some data.
- 82 Range of colors.
- 83 Filter that replaces bright stand-out pixels.
- 84 Bitmapped graphic data.
- 86 Universal file format, all platforms.
- 88 Space usually equal to half the width of em space.
- 89 Computer that downloads all software & data from network, acryn.
- 91 Approx. 1/6th of an inch.
- 92 Most common memory chip.
- 95 Computer part where instructions are decoded and executed, acryn.
- 97 File format developed by CompuServe for storing bitmap images.
- 99 Federal std. for digital signatures using Digital Signature Algorithm, acryn.
- 100 Logic gate whose output is 1 when either or both inputs is 1.
- 101 Computers & electronic communication, acryn.
- 104 IBMs in 1984 using 80286 processor and 16-bit bus.