

# PRINTERS

Printers have come on in leaps and bounds in the last few years in quality, performance, speed and cost. It is cheaper than ever to produce professional looking documents - or print high quality photo's. While there is a massive amount of choice - in truth all printers\* fall into one of two categories - Inkjet or laser. The rest is just what type of printer - and there are many !

We will try to explain the different types and the pro's and con's of them as well. There is desktop, copier, fax, photo, and multifunction.



## INKJET

Inkjet printers are what most of us have at home. They are very cheap to buy and have fantastic quality printing. In the last few years they have been able to output pictures as good as you would get developed at Boots. They are great for printing most home paperwork and school work. They take small relatively inexpensive cartridges and are reasonably reliable.

They work by spraying minute dots of ink onto a page using a head that moves from one end of the printer to the other at high speed.

They can output a huge range of qualities - from draft - using normal copy paper and reduced amount of ink at high speed to photo quality on glossy photo paper at a reduced speed

The major disadvantage of inkjet printers is the cost of the ink. An A4 sheet of photos can cost 50p-80p page - while a laser comes in at 8p-30p (Depending on model, make, etc...) This is not even counting the cost of the paper.

## LASER

Laser printers used to be for the office only - used to be black and white only and used to cost a fortune. However, much like all consumer goods over the last decade - the price has plummeted and the quality has gone through the roof.

Colour desktop lasers are now more than a reality - they are becoming the norm in schools. They offer a very cost effective printing solution. One of the greatest things about laser printers compared to inkjets is that you do not need to use different papers for different jobs. No more £1 a sheet of glossy paper ! it uses normal copy paper whether you are printing a letter to parents or full sheet photographs. They are also much faster than inkjets - generally more reliable and can handle volumes of printing much easier.

The method of getting the image on the page is by using toner - fine coloured carbon powder that is heated and bonded to the page.

# Types of printer

As mentioned before there are many different types of printer - most of which are available as both inkjet and laser.

## Desktop

This is the most common type of printer available to schools. Most school offices have a black and white (Mono) printer for large runs of letters. They are also the normal type of printer to be found in classrooms for pupils to print out work. Inkjet versions are for low quantity high quality work - while Lasers are for medium to high quantity and high output. It is very difficult to give a recommendation of which is best because there is no clear winner. It all depends on the use and purpose of the printer. There are a few rule of thumbs however to go by. A colour laser printer is the best choice for an ICT suite or shared area printer - due to cheaper printing costs and the design of the printer is designed for high throughput. While in a classroom for a teacher to use an inkjet is ideal as it will be used seldomly and the purchase cost of an inkjet is relatively cheap. In an office we would also recommend a laser printer as the volume is also high enough to justify the high purchase cost - also the quality is higher on a laser printer.

## Copier

Most schools tend to have a copier - generally a mono laser one - although colour is becoming more popular as the costs of consumables are coming down. They are great at running off high quantities of letters or reports - and recent models are capable of being linked to the schools network to be used as a printer as well. There are also inkjet versions of copiers. There is also a new type of copier designed specifically for schools as it can incorporate images and documents straight into Sims. These are becoming more popular with schools. Copiers are usually on contracts where you will pay a set price for your colour and black prints - and all consumables and maintenance will be covered in the contract. It is worth checking all the small print with these contracts - as they may include hidden charges for over or under use - They generally have a clause where you have to use a minimum amount of prints a month and charge you for that amount wether you have reached that figure or not. Please look at the next section which covers copiers more comprehensively.



# Types of printer

## Fax

Although fax machines are fast becoming obsolete by the popularity of email - nonetheless they are still a common site in the office. Again they come in both varieties laser and inkjet. Cheaper inkjet faxes should be avoided as they tend to be very high cost to replace the ink cartridge. They also tend to be quite unreliable - not really designed for office use - they are primarily designed for home occasional use. A laser fax is much better for the role of an office fax machine - or you may consider a multifunction printer

## Multifunction

As the name suggests - this is merely a combination of more than two types of device - the most common is a scanner and printer or scanner printer and fax. These items are perfect for use in a school office. As with all the printers so far they are available in both Inkjet and laser.

## Photo Printer

This type of printer is usually for home use - it is designed to print 6"x4" photo's from digital camera's. They are inkjet only\* and offer a cost effective way of printing photo's. Generally they have digital camera card readers built in and a port called Pictbridge - where you can directly connect your digital camera and chose your pictures from your camera and select print.

Along with types there is also how they will connect to your network - printers have a few options - USB - useful for desktop printers. Network - useful for sharing a printer throughout a school and more recently wireless - good for laptops.

Network printers also need a small amount of configuring by an engineer and a spare network point so a little thought needs to go into the positioning of the unit.



# Costs

As you have probably noticed - there is very little difference between the two types of technology - both have strengths and weaknesses. One area we haven't mentioned yet is something known as TCO or Total Cost of Ownership.

Lets examine the difference between inkjet and laser over a 3 year period of ownership. For this example we have chosen a Kyocera C5100 laser printer and a Canon iP3600 colour inkjet. We have based this on a 1000 pages a month at the manufacturers costings of per page, and with 50% colour 50% black printouts.

The Kyocera is £0.01p a page black and £0.06p for colour.

The Canon is £0.04p a page black and £0.12p colour.

These are fairly typical figures - and help to show the difference between the two technologies.

	PRINTER PRICE	CONSUMABLES COST	TOTAL COST
Kyocera C5100	£265	£1260	£1525
Canon iP3600	£65	£2880	£2945

Something else to bear in mind is that some printers ink costs more than others - For example a Lexmark Z815 inkjet is £0.10 a page black and £0.13p colour - a TCO of £4199.

JARGON BUSTER	
PPM	Pages Per Minute - this is a measurement of speed.
TCO	Total Cost of Ownership - this helps you work out how much something will cost you over a set period.
DPI / Resolution	DPI is Dots Per Inch - and measures the resolution - the higher the number the better - although most printers have a resolution above a visible difference.
Drum	A consumable part of a laser printer. Quite expensive but rarely - if ever changed.
Toner	The consumable Cartridge for a laser printer. Laser toner cartridges contain dry powder which is heated in the printer to form the image on the paper.
Photo paper / Glossy paper	A specially coated paper used in inkjet printers to achieve true photo quality prints. This is not usable in laser printers as the coating would melt in the high temperatures that are used.
CMYK	These are the 3 colours and black that make up a colour image on a printer. Cyan - Magenta - Yellow and Key (black).
Laser Printer	A printer that uses a laser - toner and fuser to achieve its printed output. Very fast and economical to run.
Inkjet Printer	A printer that uses a head that sprays minute droplets of ink onto the page to form an image. Cheap to buy.

\* There are some other types - however they are so small a percentage of the total market - we have omitted talking about them