

Canon

A Practical Guide for Printing in the Digital Age



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A Practical Guide for Printing in the Digital Age

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Printers: An Essential Tool in the Digital Age

Professionally printed textbooks continue to line shelves and fill student desks and backpacks in K-12 education, but increasingly they are morphing into digital products viewed on computers, tablets and other mobile devices, and infused with interactive multimedia content. Where, then, does this leave the printer? In the digital age, what is the printer's role in K-12 education?

Printers, it turns out, are morphing, too. Newer models are converging with computers and mobile devices to deliver streamlined workflows for educators, providing a host of automated tasks and updated features. K-12 schools are finding the printer is just as essential a tool in the new digital age as it was in analog times.

Having a printer available to every teacher helps support learning in the on-demand fashion mobile students require and expect, while protecting student privacy and institutional security — and often even saving money. For instance:

- Student work still needs to be in a form that can be tacked to the fridge or a parent's cubicle wall, even if it was created first on a tablet or laptop.
- Students may not have access to computers at home and may need printed quizzes, portions of content to annotate and other classroom materials.
- Some multifunction printers allow teachers to create tests, then scan in answer sheets for automated grading; these printers also produce valuable data analytics.
- Tasks such as compiling handouts can be automated, so the machine handles collating, two-sided printing, page numbering and other functions, leaving more time for instruction in the classroom.

These are just a few examples of the features that today's digitally oriented printers offer educators. Different printers have different options, however; just as one-size-fits-all textbooks and teaching fall short, so too does bulk purchasing of one-size-fits-all-classroom printers. Needs vary just as students and curricula vary, and savvy administrators will adapt accordingly, taking advantage of each unique educational environment.

ABOUT THIS HANDBOOK

This Center for Digital Education (CDE) handbook shows how administrators can build an effective printer strategy that ensures secure, efficient printer access for every student and teacher.

Newer models of printers are converging with computers and mobile devices to deliver streamlined workflows for educators, providing a host of automated tasks and updated features. K-12 schools are finding the printer is just as essential a tool in the new digital age as it was in analog times.



The Perks of Printing in the Digital Age

Wethersfield Public Schools in Connecticut, which serves 4,000 students with 625 employees at seven schools, found in 2010 that it printed and copied about 11 million pages annually. It cut this to about 9 million pages by shifting to more efficient printers and print practices — but printing and copying are still activities that are part of this modern school system.

The district also found through its modernization that today's printers provide a host of benefits, from cost savings to freeing teachers to spend more time engaging students in the classroom.

When Wethersfield began its transition in late 2010, it first studied what it was doing wrong, and found there were long, unproductive periods of waiting for printing on its 250 printers, many of which were aged and some of which broke down, taking a long time to fix.

In 2011, the district replaced its 250 devices with 80 new Canon devices and installed uniFLOW print management software to monitor print activities and access, cutting unnecessary color printing and controlling the amount of pages users print. The district also implemented document storage and management, cloud-based management and scanning capabilities.

Teachers and administrators soon found they were spending much less time on printing and copying activities. With networked, WiFi-enabled printers, they could print from multiple locations, avoiding long delays. Printer uptime also improved, and repair time was cut from days to hours.

Wethersfield teachers and administrators “started to see the efficiency right away,” says Timothy Howes, assistant superintendent of finance and human resources. “They loved it. They got time back.”

Wethersfield Public Schools in Connecticut cut the 11 million pages it printed annually to 9 million pages by moving to more efficient Canon printers.

Howes noticed that the way teachers were using printers was related to their classroom styles. Teachers who printed large volumes of paper did so to create “drill and kill” packets of material for students. Howes worked with these teachers to change the way they interacted and engaged with students, so they didn’t need to print paper-intensive packets.¹

In addition, today's printers and multifunction devices can be used in other ways to enhance digital literacy. Students might scan in images they draw or photos they take, then manipulate this digital content, drop it into a research paper or post it on a website. Or they might collaborate with other students using their multifunction device's online repository — each adding to a document they are creating, until it is finished and ready for printing to distribute to the teacher and classmates. A teacher might similarly share links to files from a printer's internal hard drive with colleagues, helping to create a desired lesson plan. In this new era of digital content, digital printers and devices have a large role to play.

How Printers Support Today's Digital Trends and Learning Needs

Mobility and 1:1 Learning

Education technology is being transformed to reflect the move to mobile. Increasingly, schools need to accommodate the use of wireless devices such as tablets, laptops and smartphones.

In addition, many education institutions are adopting a 1:1 learning strategy that allows for personalized instruction. More and more school systems are either providing students with devices or allowing students to bring their own devices from home for classroom use.

Wireless printing. Print services need to be available for teachers, students and administrative staff using their mobile, wireless devices. One desirable



feature is wireless printing, which is becoming common with today's printers. This allows users to print directly from their devices without having to attach a cable. Often, users do this by installing apps on their mobile devices to control printing, though some devices come with this functionality preinstalled.

When wireless printers are networked within an education institution, users can print to any printer on the network, which provides added convenience and efficiency. If a nearby printer is in use, a teacher doesn't need to wait, but can simply print to another printer. In addition, cloud services allow remote printing so printers don't need to be on the same network.

File sharing. New multifunction printers can be used by K-12 institutions to store course content and other materials using built-in hard drives. Teachers can assemble lesson documents by selecting files on the printer hard drive, or can share this content via the printer drive with colleagues or students who can be receiving the content at school, home or other location. This facilitates the anytime, anywhere learning that is so much a part of mobile, 1:1 learning.

Not every multifunction printer has a hard drive to hold content, but those that do — such as the Canon image RUNNER ADVANCE line — have security features to password-protect this content and hold it securely behind a network firewall. Teachers can use the scanner on a multifunction device to load content into this hard drive (also called a mailbox or advanced box), or else input it via the print function.

One way that schools structure their printer networks in a mobile environment is to have one multifunction device serve as a repository for other linked devices. For example, a centralized multifunction device could be housed in the district office with all content placed on the device's hard drive. Other devices in the district would then link wirelessly to this device and its repository of content.

The advantage of this method is centralization, which ensures that only one correct version of a particular document exists, rather than multiple versions. This method helps districts standardize content and provides a central mechanism for updating content. Teachers and students can then print the lessons, content, quizzes, permission slips and other forms they need from the central repository's hard drive.

In just one scenario, a teacher may wish to send students (either all or a particular group) a section of text to read and mark up as part of a project. The teacher sends a link to the material in the repository. The students then print the text out on a printer that is convenient for them — perhaps in the library after class while studying with classmates.

Another way educators can store content is by using Google Drive (a cloud-based repository), rather than the hard drive on a multifunction device. Canon imageRUNNER or PIXMA WiFi printers can access and print Google Drive files. A teacher may want to store a syllabus or other course content on Google Drive, then share this with students, parents or colleagues.



Whether using Google Drive or a built-in hard drive, users can access this content remotely from their computers or devices and give the print command. Or, they can go to the multifunction device directly and select the mailbox from the control panel.

In both cases, the user would be authenticated first by the print management software. Print software, such as Canon's uniFLOW, tracks output, providing cost accounting and authorizing access. Teachers, students, office staff and other users might be given different levels of access to differing print capabilities, such as color printing versus black and white, or limits on the quantity of prints and copies they can make. This helps districts keep costs down.

Portable printers. Another mobile option for educators is the mobile printer. Mobile printers are small, lightweight, portable devices that can travel with a user — for example, a teacher attending a professional development conference or traveling with students on a field trip, or even just working away from home at a coffee shop. Teachers or other users can print through bluetooth to mobile printers from their phones, tablets, netbooks or other devices. The printers can be charged while on the road using car chargers.

Special Education

Special education students typically have Individualized Education Programs (IEPs), which include confidential reports written by allied health professionals, such as social workers, mental health specialists and others. Given that student health information must be protected as a matter of federal law, confidentiality for these reports is crucial.

Secure printing and faxing features can protect these documents. For example, many printers today require user authentication, such as with a swipe card or the entry of a password, before documents will print. This avoids the scenario of a sensitive document printed or faxed to a central printer, where it sits in a document tray to be viewed by unauthorized personnel. Confidential documents can also be stored and shared digitally via secure repositories, either as part of the printer network or located in cloud services like Google Drive. In addition, the PIXMA Canon printer has three security fax features built in on the office all-in-one printers.

If teachers, administrators or students who use printers have special needs, many accommodations are available with Canon printers to make them more accessible. For example, the computerized display control panels on devices are "reversible," which means that instead of being in color, their appearance can be reversed to black and white. This can make them easier for people with

some types of visual impairment to decipher. With a normal color display, it can be harder to distinguish buttons. With a black and white display, the function buttons stand out more.

Some printers are wheelchair accessible, equipped with a tilt-able control panel that can lay completely flat, so someone can use it while sitting. A special access handle can be added to let seated users open the device. In addition, elements like USB slots and cartridges are upfront and accessible in many Canon printers, rather than hidden around the back, making them easier for people with disabilities to reach. Toner ink can be changed with one hand.

Concave keys and other tactile controls, as well as Braille kits, can be added for those with visual impairments. Remote operator software enables device control from a networked PC. Keyboards are available to control the devices as well.

Classroom Instruction

Today's printers can be used to meet a variety of classroom instruction needs, including to produce, score and analyze student assessments; to access images, templates and other design software that can help produce well-crafted content; to automate tasks; and to enhance collaboration and professional development through the sharing of material.

Creating and scoring assessments. Canon's Intelligent Grading Solution is a new application for imageRUNNER ADVANCE multifunction devices that automates the grading process for tests, while also providing test analytics. While it doesn't work with essay exams, it does work with multiple-choice and true/false types of tests — anything that makes use of a "bubble" answer system where students fill in circles using pens or pencils.

With the Intelligent Grading software, the teacher first prints a grading sheet with an answer key, then prints personalized test sheets for students. Once the test has been given, the teacher scans the students' answer sheets into the multifunction device. The data is captured and sent to a cloud service that grades the test.

The program also offers test analytics. It maintains test data in a database, allowing teachers to run reports to find out overall test performance for the class and specific students, compare current results to past scores and look at which questions were missed most frequently. These analytics help teachers see where students failed and excelled, so they can tailor their instruction accordingly.

Because the application is cloud based, schools don't need to manage its installation, implementation or maintenance. It also enables the easy upload of class rosters from student information systems without the need for an external server, which keeps costs down.

Accessing clip art, templates and other tools. Depending on which printer is chosen, teachers will be able to use image-editing software, royalty-free images and cloud-based templates that come free with the device.

One software tool that comes with the Canon imageRUNNER ADVANCE is a plug-in that allows users to integrate images stored in the device with content they've created using Microsoft Office. For example, a teacher may want to gather Word, PowerPoint or Excel files into a course pack or syllabus. This tool offers teachers an easy means to do this, joining electronic-based as well as paper-based content.

Some types of printers come with software that lets the printer capture still images from video clips as well as sections of webpages. These can be helpful in student research papers and other projects.

Task automation. Workflow Composer is available on some Canon multifunction devices. This tool lets teachers consolidate multi-step workflows (such as documents that need to be duplexed, collated and stapled) into one-step buttons, saving valuable time.

With this tool, different functions can be associated with each other. For example, a teacher might want to scan a document, print it and deliver it to a back-end repository. Instead of a teacher having to do all these steps himself or herself, the system can be programmed to do them all automatically. The device will handle the work in the background, freeing the teacher for other work.

Collaboration. Teacher collaboration is recognized as a key element in effective instruction. Teachers often work together in professional learning communities and need to share curriculum with each other. As traditional textbooks give way to more individualized, open source and ad hoc learning resources, teachers are finding that sharing these materials with each other is an important way to find the best content for their students.

Using digital repositories, such as the hard drives on Canon multifunction devices, can help teachers more easily share content with each other. They can also develop lesson plans together and share other common documents and forms, such as permission slips and attendance sheets.

Determining the Right Printer for the Right Task

Printers are used by educators for any number of tasks, from grading to creating PowerPoint presentations to printing out homework material, flashcards, notes, forms, quizzes and other items. Copying and scanning functions are also important. Some classes — such as high school graphic arts programs — may have need of a graphic arts printer or photo printer.

There is no hard and fast rule to say which printer is best for which education institution; often, a mix of printer types best suits diverse needs. While multifunction devices with color capabilities are increasingly popular with the K-12 market, the reasons for picking a particular printer vary greatly. Here is a look at some of the features for each type of printer.

Inkjet printers. Inkjet printers shoot fine droplets (or jets) of ink onto paper. They are often smaller than other types of printers, such as lasers, and as such may fit better within a classroom, where teachers can use them to print student artwork, charts, graphs and photos.

Other benefits of inkjets are their ability to quickly print relatively high-quality graphics, such as photos and maps, and their lower upfront purchase price.

On the other hand, inkjets have a slower text document speed and may require relatively frequent replacement of ink cartridges, depending on the amount of use.

Laser printers. Laser printers use toner (dry ink powder) rather than liquid ink to create their images. The advantages of laser printers over inkjets include faster document (black and white) printing, which becomes especially apparent with large print jobs, such as creating student handbooks, special reports or other policy documents.

Lasers are more economical for volume printing since toner cartridges have greater capacity and last longer than inkjet cartridges.

Multifunction devices. Multifunction devices, also known as all-in-ones, combine several functions, such as printing, copying, faxing and scanning. They are available in both types — inkjet or laser.

An advantage of multifunction devices is that you get more bang for your buck — more functionality in a single unit, with its attendant cost savings and

CANON PRINTERS FOR THE EDUCATION MARKET:

✓ imageCLASS LPB6780

A single-function black and white laser printer. Variations include the LPB6780DN, which can print duplex (two-sided) and is wireless; it prints 42 pages per minute, which is helpful in a classroom of 30 kids when you need to get a quiz or test in students' hands quickly.



✓ imageCLASS MF4890

A multi-function laser that is black and white, can print up to 26 pages per minute and can be used wirelessly in the classroom (several versions of this machine exist with differing features, such as lower page-per-minute speed).

✓ imagePROGRAF

Large format printer line with many models from which to choose.

✓ PIXMA MX922

Has an auto-duplex automatic document feeder, so users can work with multi-page documents and copy or scan two-sided originals without having to turn the pages over. The control panel is built into the lid and easy to get to, especially when struggling with oversized materials like textbooks. This printer is also the only one to have dual front paper cassettes — an upper cassette that holds 5x7 or 4x6 photo paper and a lower tray that accommodates up to 250 sheets of plain paper.

✓ MG7120, MG65520 and iP7220

Printers with two-sided printing (but not the auto-duplex feeder). All these printers also have individual inks, so you don't have to replace more than you need. The MG7120 and MG5520 have touch-screen menus. These printers work with the following wireless options: PIXMA Cloud Link (which connects to Web templates and online photo album sections of Canon iMAGE Gateway and Google Picasa), Airprint (for iOS), Google Cloud Print (print attachments from Gmail and Google Docs) and Wireless PictBridge (which allows you to print photos wirelessly from WiFi-enabled cameras).

✓ PIXMA iP100

Mobile printer

efficiencies. So, for example, administrators and IT support staff have fewer devices and maintenance tasks or service contracts to handle. This lessens the work involved when dealing with traditional standalone printers, scanners, copiers and fax machines.

Canon's advanced multifunction printers, such as the imageRUNNER line, allow users to go beyond copying, scanning and faxing. These printers have more sophisticated applications, like test grading and data analytics, and allow for custom workflow processing, student onboarding and usage of a mailbox repository.

Large format printers. A large format printer is a specialty printer designed to print large graphics, text or pictures. These are inkjet printers with extra-wide paper capacities and ink reservoirs that can produce posters, banners and signs.

Teachers can print posters to decorate classrooms and hallways — the ABCs, maps and multiplication tables, for instance. Administrators may wish to print signs advertising upcoming school events or promoting school spirit. Schools can use them in advanced graphic design courses to print student projects.

One distinguisher among types of large format printers is the width of the paper that can be fed into them. Generally, K-12 institutions will find a 24-inch wide product suits their needs, since most posters are 16x20 and banners are 24 inches wide, up to 59 feet long. Other options are 36-inch, 44-inch or 60-inch width.

Another factor is ink type. The type of ink used in a print determines how durable the color will be. A dye ink image may last 30 years; a pigment ink print can last up to 100 years. Typically, a K-12 institution will find its needs met with a dye ink machine.

Canon's large format printers come with poster-making software (PosterArtist Lite) that allows teachers to create any type of poster quickly and easily. Canon also provides royalty-free images, templates and guidance in poster creation.

One consideration with large format printers is that they don't work very well with wireless printing due to the large size of the graphic files involved. A hard drive and hard connection are needed to transfer these images.

On the plus side, large format printers allow schools to save on the costs of outsourcing this type of printing. For example, a 24x36 poster can be printed on bond paper for about \$1 — much less than a school would pay an outside

LARUE COUNTY HIGH SCHOOL PROMOTES ACADEMIC EXCELLENCE WITH LARGE FORMAT PRINTERS

LaRue County High School in Hodgenville, Ky, used to pay an outside vendor to print posters and other notices. This was not only costly, but limited school administrators' design options and printing flexibility (if a date changed at the last minute for an event, for instance).

The school bought a Canon imagePROGRAF large format printer, which was bundled with PosterArtist software. This let school officials change designs and content on the fly.

"We are now able to celebrate our academic excellence and achievements by telling a more compelling story, using posters with colorful imagery that deliver a more professional look and feel," says Principal Paul Mullins. "The imagePROGRAF has exceeded my expectations because it's not only printing copy but also greatly improving our communications and marketing channels within the school and throughout the community."¹²



print shop. The district can offer this savings to parent-teacher organizations or other clubs, while still charging a small mark-up (say \$10 for a poster). This lets the school or district recoup costs more quickly. Another advantage to schools having their own large format printer is that teachers and school officials have a lot more control over what they are printing.

Tips for Driving More Secure Operational Controls

Print management software can help coordinate workflow among multiple printers on a network. If, for instance, a print job comes in that is a large, black-and-white document, the manager finds the printer most suited for that type of printing task.

Management software also tracks jobs that are queued at printers and deletes those waiting past a predetermined time, such as 12 hours, sparing waste. These programs also monitor users' activities and enforce user authentication protocols.

Security is another function that can be ensured by printer software applications. This is especially key given that the federal government requires education institutions to protect student safety and privacy through regulations like the Family Educational Rights and Privacy Act (FERPA). Canon printers use software with a host of security provisions to ensure school districts meet regulatory mandates.

User authentication solutions require teachers, students, staff or anybody trying to use a printer to be recognized by the network. This could happen through card-based access to devices, requiring students or teachers to swipe cards or touch them to a sensor on the device. This would pull up their profile — what type of device access they were permitted (no color printing for students, perhaps, or limits on the number of pages that can be printed).

The authentication also applies to information stored on the device repository. Confidential documents and other materials will only be accessible to those with the appropriate authentication levels.

Faxes, for example, can be protected within confidential fax mailboxes inside multifunction devices. Fax activity can be routed to email, with confidentiality maintained. Faxes can also be shared via a link sent to the recipient, with password input required before they can be viewed and printed.

Another security measure can occur at the printer itself. Depending on the way a system is set up, nothing is printed until the authorized user authenticates at the machine, which prevents confidential documents from being printed without the user being there to pick them up.

In addition, devices with hard drives come with hard-drive data encryption, data lock and data erase tools, which protect the information in the case of loss or theft.

Finding Cost Savings in Your Print Strategy

While a printer or printer fleet can be an investment for a school, it can also present an opportunity to save money — both in time and in direct usage costs — as well as to become more environmentally responsible. So how can you save money using your printer or multifunction device? Here are some tips.

USE PAPER AND INK MORE EFFICIENTLY.

- ✓ Use two-sided (also called duplex) printing wherever possible; set your printer so that this is the default setting (auto duplex).
- ✓ Use a lower-quality print output setting, such as draft, for daily use to save ink; consider setting this as default. A teacher or student working on multiple drafts of a worksheet might want the draft mode for early copies and then standard or high for the final result.
- ✓ Use black-and-white printing for most worksheets, tests and quizzes.
- ✓ If you are using inkjet printers, select a model that lets you replace individual inks rather than having to buy an entire cartridge when just one color is low.
- ✓ Look for inkjet printers with a “pigment black” ink option: A double ink tank for black, which gives more usage, especially if you print a lot of black-and-white materials, such as text documents.
- ✓ If you use laser printers, check for “pure black technology” — this allows the printer to recognize a black-and-white job and avoid tapping into the color inks to create the black tone, which prevents wasting color toner.
- ✓ Don't try to refill with non-standard, generic ink as this can harm the printer and cost more in the long run.



- ✓ Use print preview to choose the most economical layout (perhaps landscape is better than portrait as a way to consolidate images on a page). This is especially key if you are printing a large color image — rather than wasting ink on a test run, let the preview guide you.

USE CONTROLS TO LIMIT AND TRACK ACCESS.

- ✓ Print manager software, such as Canon's uniFLOW application, can assign cost limits to teachers, students, entire classrooms or other user groups; once a certain amount of ink has been used in a set time period, the user can no longer print.
- ✓ Use key-codes and log-ins to authenticate users, monitor activity and control usage.
- ✓ Use print management software to redirect jobs to the most efficient printer (a large document might be sent for printing to a large volume printer, for example).
- ✓ Analyze your print monitoring data to determine what sorts of usage policies need to be implemented.

CONSIDER MULTIFUNCTION DEVICES TO SPARE THE COST OF PURCHASING SEPARATE SCANNERS, FAX MACHINES AND COPIERS.

SHARE NETWORKED PRINTERS RATHER THAN HAVING ONE IN EACH CLASSROOM; USE WIRELESS PRINTERS SO YOU CAN PRINT TO ANY PRINTER ON THE NETWORK. SAVE ON SERVICE COSTS.

- ✓ Consider a single vendor for your products; this provides efficiency through compatibility of platform and supplies, while vendor servicing also is more efficient than having to keep track of multiple service plans, dates and maintenance schedules.
- ✓ Research your prospective vendor's service record; if printers are not fixed quickly, this could slow down teacher and staff functions, which can cost money in lost efficiency.
- ✓ Canon service staff can monitor printer status remotely and often correct problems this way; technicians also are available for on-site visits when needed.

TRAIN STAFF ADEQUATELY.

- ✓ If your users know how to correctly and optimally use your printers or multifunction devices, this can not only avoid problems, costly delays and even unneeded repair calls, but can help teachers, administrative staff and others get the most out of a printer, such as automated workflow tasks, which save time and money.
- ✓ Canon provides staff training in person, online or via phone.

Printers in Action: Districts Save Money, Improve Efficiency

Libertyville School District

Libertyville School District, located north of Chicago, is a progressive, technologically oriented district. However, it recently realized that its fleet of standalone printers and networked copiers weren't keeping up with the needs of the district.

Printing and copying costs were too high, while time spent by IT staff to maintain the diverse collection of printers (such as having to find and install various print drivers) was delaying more productive work. At the same time, the district was faced with shrinking budgets, meaning it needed to find ways to control costs while ensuring security and providing mobile device access.

The solution? Libertyville bought 16 Canon imageRUNNER ADVANCE multifunction devices while cutting the number of standalone desktop printers in half. It also installed Canon uniFLOW software to manage printing by the district's 350 staffers, resulting in a 50 percent decrease in overall print-related expenses and a 20 percent drop in the amount of materials being printed.

Users began using smart cards to access the printer, resulting in enhanced security. IT staff spends less time provisioning printers thanks to the universal print driver on each device, which automatically recognizes the system.

"This has reduced waste; increased accountability at the district, departmental and individual levels; and fostered a greater sense of privacy regarding potentially sensitive information," says Dr. Kurt Valentin, associate superintendent of finance and operations for the district.³

Kaneland Community Unit School District #302

Kaneland Community Unit School District #302 in northern Illinois serves about 4,800 students in six schools spread out over 140 miles. In 2010, the district decided to see how much it was printing and copying. The answer: about 1.4 million pages were printed each year, and a whopping 13.4 million were copied.

To do this, the district was using hundreds of different devices of varying ages and from varying vendors, including standalone printers and copiers — at a cost of about \$200,000, taking into account lease, paper and supply costs.

Kaneland administrators replaced 400 classroom printers with 30 centrally located multifunction Canon devices. The district also installed Canon print

management software. These changes resulted in Kaneland cutting costs by 21 percent, while saving teachers and staff valuable time.⁴

Fonda-Fultonville Central School District

The Fonda-Fultonville Central School District in New York serves about 1,500 K-12 students with 200 employees located in one huge (285,000-square-foot) building. The district wanted to save money and make its printing practices more efficient. It had many unconnected, unmanaged devices scattered about the building, but the lack of management tools meant that administrators couldn't monitor or control costs related to printing and copying, ensure secure printing and prevent unauthorized use.

TOP QUESTIONS TO ASK WHEN SELECTING PRINTERS

Here are some questions to consider if you are shopping for printers for your education institution.

1. What are my institution's printing needs, both for teachers and for administrators?
2. Do we often print posters or banners? How large? Would we save by having our own resource for these rather than sending them out to commercial providers?
3. Is most of our printing in color or black and white?
4. How much IT management capability do we have? Do we have a strong IT department? Is it likely we will need assistance from the vendor?
5. What type of maintenance and service plan does the vendor offer? Are technicians available on site, online and/or via phone?
6. Does the vendor provide staff training? If so, is it on site, online and/or via phone? What is the cost?
7. Do we want to use solutions on premises or in the cloud?
8. How are we going to deal with student information security? Do we plan to offer mobile device access? Have we considered the security implications of doing so?
9. What type of cost control strategy are we considering implementing? Are there printers with features that will help us with this, such as monitoring and access controls?
10. Are the following features important to us and, if so, do the machines we are considering have these?
 - Built-in memory
 - USB port
 - Duplexing feature (two-sided copying)
 - Wireless printing and mobile printing apps
 - Security and/or usage control features

In 2012, the district transitioned to a managed system that included 13 Canon imageRUNNER ADVANCE multifunction devices, uniFLOW management software, and an imageWARE document server to hold financial and student records. This solution let the district get rid of dozens of outdated, single-function units.

The document repository has helped the district manage records more efficiently. New documents are entered by scanning them in the imageRUNNER ADVANCE device and then sending them to the imageWARE server for storage. Scanning software uses optical character recognition technology so the text in the documents is searchable — users can go into the repository to quickly find information and pull up needed documents without having to spend time reading through image-based scans.

The district anticipates saving close to \$500,000 over the next five years due to these changes. Says Carey Shultz, district treasurer: "The switch to all Canon products has been one of the best decisions the district has made this year."⁵

Conclusion

In the near future, the process of registering new students, including adding all their paperwork to digital files, will be streamlined through the use of Canon multifunction devices. Documents like birth certificates and transcripts can be scanned directly into a district's student information system, coordinating and integrating with existing software. Student onboarding is just one of many advanced capabilities in today's new printers which will allow districts taking advantage of them to become more efficient — thereby saving time and money. Similarly, teachers who can use grading solutions to prepare tests or workflow tools to automate tasks will have more time to spend on actual teaching. Printer management features that let districts curb waste will save on paper, printing supplies and power consumption.

Networked, wireless printers will make it easier than ever before for mobile learning to occur, smoothing the transition to personalized, 21st-century instruction — and showing that the need for printers in the digital age remains strong.

ENDNOTES:

1. http://usa.canon.com/CUSA/assets/app/html/Case_Studies/IDC_MDS_Wethersfield_Case_Study_May2013.pdf
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3. http://usa.canon.com/CUSA/assets/app/html/Case_Studies/uniFLOW_CaseStudy_Libertyville.pdf
4. http://usa.canon.com/CUSA/assets/app/html/Case_Studies/CaseStudy_Kaneland_HighRes.pdf
5. http://usa.canon.com/CUSA/assets/app/html/Case_Studies/CaseStudy_Fonda_Fultonville_HighRes.pdf

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