

Best Practices for Integrating Chromebooks into Teaching & Learning



See
**Chromebook
Integration**
Checklists
& Resources
Page 21-24

Best Practices for Integrating Chromebooks into Teaching & Learning

Chromebooks, the lightweight laptops that run software from the Internet instead of a local hard drive, have skyrocketed in popularity within the last few years—and in the second half of 2014, Chromebooks surpassed iPads as the most popular devices sold to U.S. schools.

Worldwide sales of Chromebooks are expected to reach nearly 7.3 million units in 2015, up 27% from 2014, according to technology research firm Gartner Inc. Education is the single biggest market for Chromebooks, with schools accounting for 60% of U.S. Chromebook sales in 2014.

In this resource guide, we'll look at why Chromebooks are so popular among schools. We'll also explore some of the biggest challenges to implementing Chromebooks in education—as well as best practices and keys to success at the district, school and classroom levels.

TABLE OF CONTENTS

Introduction	2
Why Chromebooks.....	3
Challenges to Implementation.....	5
Keys to Successful Implementation	7
Best Practices Case Studies	
- District: Rabun County, Georgia.....	9
- School: Etiwanda High School, California	13
- Classroom: Chaffey Joint High School, California.....	17
Chromebook Integration Checklist.....	21
Resources: Where to Learn More.....	24

WHY CHROMEBOOKS?

Chromebooks run on Google's Chrome operating system, and they deliver applications over the Internet through a Software-as-a-Service model. All information is saved in the cloud continuously as students work, and software updates occur automatically.

Chromebooks are solid-state devices, but they offer Flash storage so students and teachers can work offline as well. What's more, the devices boot up quickly, so very little class time is wasted waiting for the machines to operate.

Low cost

According to K-12 administrators, the No. 1 advantage of Chromebooks is their low cost. In a national survey of more than 700 school and district leaders in June 2015, 96% cited "affordability" as a key benefit of the devices—by far the most popular response.

**96% cited
affordability is
main benefit of
Chromebooks**

With Chromebook options starting around \$199, schools can afford to buy more of the devices for the same amount of money, getting technology into the hands of more students.

Ease of use

Access to Google Apps was the second most often-cited benefit of Chromebooks, at 83%, followed by ease of deployment (81%), boot-up time (71%), and portability (69%).

"Teachers love the (Chromebooks') ease of use, quick response time, and less technical difficulty than Windows," one survey respondent wrote. "Kids miss some Windows functionality, but overall they are happy with the devices and Google Apps vs. Office."

***"Teachers love the
(Chromebooks') ease of
use, quick response time,
and less technical
difficulty than Windows."***

For technology to transform instruction, "it needs to be seamless," said Greg Desilets, a senior sales manager for PCMG. "When a teacher has a problem with the technology, then it's a distraction—and it's back to using textbooks. You certainly don't want technology impeding the teacher's lessons."

Because it's browser-based, Desilets said, a Chromebook offers users this kind of seamless experience. "You don't have to worry about the problems you would have with a standard computer," he said, such as crashes or viruses that target the device's operating system.

Ease of management

For 56% of survey respondents, the central management capability of Chromebooks is another key advantage.

Using a single interface, school IT staff can create user groups, push out applications to students' devices, blacklist or whitelist applications, track assets, manage logins and passwords, and change network and device settings. The Google management console allows IT administrators to change or upgrade every Chromebook at once, or to target groups of Chromebooks or even a single device.

School IT leaders don't just save time in managing and provisioning Chromebooks; they also save time in troubleshooting.

"In some of the schools that I've worked with, they were spending 50% to 60% of their time just reimaging computers with problems owing to student misuse, viruses, and so on. Reimaging was a heavy burden on the IT staff," Desilets said.

With Chromebooks, this isn't necessary. "You don't have an image to load," he explained. "The devices are stateless, so any updates needed come from the cloud. It takes all that stress and time away from the IT staff."



CHALLENGES TO IMPLEMENTATION

By a wide margin, survey respondents identified teacher training as their top challenge when implementing Chromebooks.

Nearly two-thirds (64%) said this was something they struggled with, followed by not having enough devices for all students (50%). But two out of three respondents (66%) also said they have been able to resolve these challenges—for the most part.

"It's a work in progress," one said.

66% reported success in overcoming their challenges implementing Chromebooks

Staff training

To resolve the training challenge, most K-12 leaders said their schools have implemented professional development programs of some kind. Workshops focusing on the instructional use of Chromebooks were reported by 63% of respondents, and workshops focused on their technical use were reported by 53%. Other training methods included in-classroom support (50%) and one-on-one instruction (47%).

Because Chromebooks represent a departure from the traditional computing model that many teachers are familiar with, in which they save files and store software to a local hard drive, it can be challenging for them to adjust to a new mindset, where they are saving files to Google Drive and using only Chrome-based apps.

"Teachers are slowly but surely getting used to the Chromebooks, but cloud computing has been a big paradigm shift for many of them," one respondent said.

Of course, learning how to use the technology is only the first step. Teachers also must learn how to integrate Chromebooks into their lessons in pedagogically sound ways, taking advantage of the devices to support student inquiry and collaboration.

Giving teachers time to explore the use of Chromebooks, and to find Chrome apps and extensions for use in their classrooms, can help them become more comfortable with these tools.

"We gave our teachers Chromebooks six months before the students, so they could get over their own fears," one respondent wrote. Another wrote, "Teachers need to experience them firsthand" if they are to change their instructional practices.

We gave our teachers Chromebooks six months before the students, so they could get over their own fears.

Software compatibility

Yet another key challenge, identified by 22% of survey respondents, is the lack of compatibility with software currently used by their school districts. "The biggest issue we face is using our (legacy) apps that are class-specific," one K-12 leader wrote. But that doesn't have to be a problem, thanks to virtual desktop infrastructure (VDI) technology.

"You can use VDI clients with Chrome and use Chromebooks as thin-client machines," Desilets said. "So the restriction that you can't use native applications is really just in people's minds. And the user experience, with the upgrades now available in both Citrix and VMWare, is really the same as if you have a full operating system."



KEYS TO SUCCESSFUL IMPLEMENTATION

From decades of research on technology in education, some clear best practices have emerged—and these same practices can guide schools' Chromebook use as well. Here are three important strategies for success.

Let the curriculum guide your choice of tools.

"A common mistake that many schools make when using any type of technology is not asking: Why are we doing this?" Desilets said. "Aside from online testing, do you have a plan for how you will use the Internet and online applications?"

Many schools acquire technology before they have a well-developed plan for how these tools can support and enhance teaching and learning. They leave it up to teachers to figure this out, with very mixed results. But when you begin with your learning goals in mind, and then you choose technology tools and apps that can help teachers and students achieve those goals, you are much more likely to realize success.

Tom Daccord is the co-founder and director of EdTechTeacher, a professional learning company that helps educators use technology effectively. He recommends that you start by describing your vision for teaching and learning: "What skills do you want students to learn? What do you want them to be able to do, and how do you want them to demonstrate their learning?" Then, help teachers choose tools and apps that can support this vision.

Because they integrate well with Google Apps, Chromebooks are an effective platform for online collaboration, he said. But there are many high-quality Chrome apps and extensions for creating and publishing as well.

"Because they integrate well with Google Apps, Chromebooks are an effective platform for online collaboration."

Focus on change management.

In a landmark 2010 study, Project RED looked at technology use in nearly 1,000 U.S. schools. The organization's research aimed to identify the factors that made some ed-tech initiatives more successful than others. Its findings suggested that schools with one-to-one computing programs outperformed the others—and nine key factors led to even greater success.

One of those nine factors is strong principal leadership, including a focus on change management. Applying this idea to Chromebooks, principals should provide ample time for teacher development, collaboration, and experimentation—and they should model and champion Chromebook use in their schools.

"Schools that give teachers both a vision for using Chromebooks and time to experiment with the devices tend to be more successful," Daccord said.

Strong leaders also build a consensus around their vision, and they get their staff to buy in to the district's goals. "If there is agreement on the learning goals and how to use Chromebooks to support those goals, then it's much easier to move the program forward," he said. "But if teachers are going in different directions, you can't move forward."

Make sure you have a robust network infrastructure.

"Because Chromebooks are web-based, it's critical that schools have a stable, robust connection to the Internet," Daccord said. "Think carefully about where those devices will be used in your buildings—and make sure you have the capacity for multiple students to log on at once."

To support Chromebook use in schools, "make sure that you properly plan the bandwidth needed for your schools—you need a robust pipeline to and from the Internet—and make sure that your wireless density is set up properly, so that you have enough access in the classrooms," Desilets said. PCMG can help schools perform a wireless site survey to analyze their coverage and determine whether they need to increase the density of their access points.

If you can't afford to upgrade your wireless networks to support all students at once, consider staggering your rollout by starting with certain grade levels, Daccord said. As your network is improved, then you can build the program out and introduce more Chromebooks.

"It can be very frustrating and can dampen enthusiasm for using technology if the network is not robust enough," he cautioned. "The first few months of any new initiative are critical to its success."

"Think carefully about where those devices will be used in your buildings—and make sure you have the capacity for multiple students to log on at once."

Chromebooks Help District Put Devices in More Students' Hands



Cost-effective technology helps Rabun County achieve its goals. Here are five keys to the district's success.



A few years ago, Georgia's Rabun County Schools began using Google Apps for Education as an easier and less expensive alternative to locally hosted software. The district's next step was to provide devices for as many students as possible—and with the help of PCMG, Rabun County has rolled out Chromebooks as a cost-effective way to get technology into the hands of more students.

"The Chromebook just works," said IT Director Jason Hogan. "It boots up fast, it's easy to use, and it's inexpensive. It's a wonderful tool to make all of this complicated stuff seem simple."

Chromebooks run on Google's Chrome operating system, and they deliver applications over the internet through a Software-as-a-Service model. All information is saved in the cloud continuously as students work, and software updates occur automatically. With Chromebook options starting around \$199, the devices are affordable for nearly any school budget.

"It boots up fast, it's easy to use, and it's inexpensive. It's a wonderful tool to make all of this complicated stuff seem simple."

In Rabun County, students are using Chromebooks to collaborate on projects, working together on a single shared document in the cloud—and teachers are using them to make formative assessment a breeze. The devices "are taking education to a whole new level," Hogan said. "In my career, I never thought I'd see education quite like this."

Here are five keys to the district's Chromebook success:

1 Invest in network infrastructure.

A significant factor in the district's success has been making sure that students and staff can access the cloud-based software without problems. To do this, Rabun County has invested in a robust network infrastructure that supports its mobile computing initiative.

"We're pretty blessed in terms of the infrastructure that we have," Hogan said. "We have a fiber internet connection and fiber running between all of our schools. We have 10 gigabits per second (of bandwidth) between schools and 1 Gbps between all the closets, and we have 100-percent wireless coverage in our buildings."

The district's network infrastructure was paid for over a three-year period with special-purpose, local-option sales tax (SPLOST) money, a method of funding capital outlay projects in Georgia through a 1-percent county sales tax. "We came up with a plan, and our board of education agreed to finance it over three years [at a cost of] a little over \$450,000," Hogan said.



2 Start slowly.

Rabun County began with a modest pilot project and then expanded from there, which gave the district time to resolve any issues that arose.

"We ran a pilot last year, sending Chromebooks home with our Advanced Placement students," Hogan said. "We bought 230 devices and had a pretty good experience."

Chromebooks are easy to fix when something goes wrong, he noted. "We didn't have a big issue with that; I was surprised. During the whole year, we might have fixed six broken screens."

This year, the district decided to add more Chromebooks and put them on mobile carts, giving all students the ability to use them instead of just a select group of students.

"We felt it wasn't really fair to the rest of the students to restrict them from having Chromebooks," Hogan said. Rabun County added 378 Chromebooks this year, putting these and the original 230 devices on carts for the whole district to use—and bringing the district's total to more than 600 devices for about 2,200 students.

3 Build teacher support.

District technology initiatives won't be successful without teacher buy-in and support. Rabun County has used creative means to build this support from the ground up. For instance, the district has targeted early adopters by nurturing their ideas and helping them share their enthusiasm with the rest of the staff.

"Identify your key teachers—the ones who are really excited—and then build off of their ideas."

"Identify your key teachers—the ones who are really excited—and then build off of their ideas," Hogan recommended. If teachers see their colleagues enjoying success, he explained, they will be more likely to try it for themselves. "I don't ever try to push something down somebody's throat," he added. "That doesn't lead to success."

Rabun County has placed an IT employee in every school to support teachers and students. These employees provide training as well as tech support. What's more, Hogan and his staff introduce new ed-tech tools and concepts during teacher staff meetings.

"Teachers are so swamped with what they have to do now, they're looking for something to save time," he said. "If you can show them how they can save 10 or 15 minutes a day"—such as by moving assessment online, for example—"you're instantly going to pique their interest."

4 Learn from others' mistakes.

Rabun County technology staff attend Google conferences and other training sessions to learn from their colleagues in other districts about what works—and what doesn't.

"Learning from other people's mistakes is always a good idea," Hogan said. "Before doing anything like this, I would recommend going to one of the Google Summits in your area, because you're matched with your peers, and there are plenty of people who are more than willing to share."

With help from the Google Summits, Rabun County was able to set up students' Google accounts in a way that was easy to manage. Hogan estimates he has saved "a ton of hours" in following the advice he has learned at these summits.

"I've had my technicians go to two Google Summits over the years, and I've offered to send teachers with money from our IT budget as well," he said.

5 Find the right partner.

PCMG has been a valuable partner in the district's efforts, offering attractive pricing and additional support to help make the initiative a success. Hogan added, "My sales rep always gives me feedback to help me make better decisions, and the service is exceptional. If anything ever comes in damaged, it's immediately taken care of. You're not left with trying to get your product a month later. They're very professional—and a very good company to deal with."



Building a Culture of Effective Chromebook Use in Schools



Etiwanda High School leaders have created opportunities for teachers to learn from experts and each other, and they've created an environment in which Chromebook use is flourishing. Here are their keys to success.

At Etiwanda High School in California, Principal Don Jaramillo and his staff have worked to create a culture of effective Chromebook use—and they are seeing more engagement among students and a higher quality of work as a result.

For the past few years, Etiwanda has been adding Chromebooks purchased from technology provider PCMG. The school now has several hundred Chromebooks on mobile carts that teachers can reserve for their classes using an online form.

Instead of taking a top-down approach, Jaramillo and his staff have grown the use of these devices in their school organically by building on the enthusiasm of teachers who are early adopters and encouraging them to share their successes with colleagues.

"You can't force teachers to adopt technology if they're not prepared, or if they haven't been given the resources to succeed," he said.

Etiwanda High School leaders have created opportunities for teachers to learn from each other, such as weekly staff collaboration time every Friday morning. (The school day starts an hour later on Fridays to make time for this collaboration.)

Teachers also are supported by district technology coaches, who are former classroom teachers and who share ideas for using Chromebooks to enhance instruction.

"Teachers can sign up and request any one of us to go to their classroom before school, after school, or during their prep period to assist them in learning something new about technology," said Instructional Technology Coach Paula Torres.

Torres said these one-on-one meetings with teachers have been very effective. "Being with them one on one allows for more discussion about how they might incorporate the Chromebooks into their lessons," she noted.

In addition, Jaramillo has sent his school's teacher leaders to ed-tech conferences to learn more about how to integrate Chromebooks into their instruction.

One of those leaders was English teacher Stacey Roozeboom, who recently attended a Google conference.

The event "showed me what was possible," she said, "and now I'm a little Google crazy." She said she learned about several new Google apps that she plans to use in her lessons, adding: "You have to give your leaders opportunities to see what's out there."

Roozeboom said her students are much more engaged since she began using Chromebooks in her classroom, and she has seen the quality of their work improve as well.

"My students are spending more time on their assignments," she said, describing one project in which she challenged them to create a movie trailer for one of the books they had just read. "I gave them 20 minutes to work on it during class, and many of them spent several hours continuing to work on the assignment at home."

"You can't force teachers to adopt technology if they're not prepared, or if they haven't been given the resources to succeed."



Creating opportunities for teachers to learn and grow professionally is critical to building a culture of effective Chromebook use in schools. Here are four other keys to Etiwanda's success:

1 Listen to teachers' needs.

"We listen to our staff's needs and identify how we can help meet those needs," Jaramillo said. This culture stems from the central district office, where the Chaffey Joint Union High School District asked for teacher input when choosing what kind of devices to buy.

"Our district wanted to get interactive whiteboards for every classroom, and many teachers said that wasn't a good idea," Torres said. "Chromebooks turned out to be more useful, coupled with LCD projectors in the classrooms. Additionally, touch-screen Chromebooks have been a nice tool in the math departments, where students are zooming in and out of graphs."

She added: "Listening (to teachers) is so important."

"We listen to our staff's needs and identify how we can help meet those needs."

2 Create an environment of trust and support.

Mike Bement, technology director for the Chaffey Joint Union High School District, said it can be intimidating for teachers to try a new approach in their classrooms, because they don't want to fail in front of their students.

"If you're trying something new, you need someone there to guide and support you," he said. "That creates an environment of safety."

The district's instructional technology coaches serve that role, he said, allowing teachers to experiment with using Chromebooks in their classes while knowing they will be supported if anything goes wrong. Having reliable wireless connectivity in every classroom also is critical. "The last thing you want to do is have an elaborate lesson and have the equipment not work," Bement said.

3 Celebrate exemplary Chromebook use.

Jaramillo and the district's other principals play a key role in setting up support structures on their campuses to ensure successful Chromebook use, Bement said.

"The main thing they're looking for when doing classroom walkthroughs is whether students are engaged and on task with the lesson," he said. But if principals observe teachers using Chromebooks to take their students' learning to a deeper level, they will take pictures and share them with the wider community. They'll also recognize exemplary teaching practices at staff meetings and in other venues.

"Principal advocacy is important to any initiative succeeding," Bement said. "The combination of principals modeling and celebrating Chromebook use is very powerful. There is a lot of positive reinforcement that comes from that; the principal-as-promoter role builds a lot of momentum."

As Jaramillo put it, "You can see the excitement growing among students and staff—and you want to support those experiences."

"You can see the excitement growing among students and staff—and you want to support those experiences."

4 Choose a full partner, not just a technology provider.

PCMG has been much more than just a technology vendor: The company has been a full partner in the district's Chromebook initiative, Bement said—offering valuable advice as well as competitive pricing.

PCMG "connects us with peers in other districts who are doing similar things," he explained. "They continue to watch the marketplace to keep up with the latest trends and features, so they can make sound recommendations. Their ability to partner with us in researching our technology options has been invaluable."



When Chromebook Use is Driven by Instructional Goals, Success Follows



Learn three keys to Chromebook success from California's Chaffey Joint Union High School District



At California's Chaffey Joint Union High School District, district leaders have established a vision for using Chromebooks to empower students. But it's the *teachers* who determine how they will use Chromebooks during instruction, based on their curriculum goals—and this approach has led to early success.

With more than 25,000 students, CJUHSD is one of the largest high school districts in California. It includes eight comprehensive high schools, one online high school, one continuation high school, one community day school, and one adult education school.

Located east of Los Angeles, the district serves many economically challenged students. About half of its students qualify for free or reduced-price lunch, and some 1,600 students are homeless or live with foster families, said Technology Director Mike Bement.

"There is a really strong focus throughout the district in helping students succeed by going to college or getting a good job and raising their economic well-being," he said.

To prepare students for the high-level jobs of the future, CJUHSD is focused on developing the "four Cs"—communication, collaboration, creativity, and critical thinking skills—in addition to students' core content knowledge.

District leaders view technology as an important tool in supporting the development of these skills, a belief that is shared by members of the community. A few years ago, voters supported an \$800 million property tax bond to upgrade the district's facilities and technology.

With input from teachers, CJUHSD invested some of this money in buying Chromebooks from PCMG, putting four mobile carts—each equipped with 20 Chromebooks—in each of its eight comprehensive schools.

"Chromebooks were our device of choice, because the price was right and they had a keyboard," Bement said.

While district leaders have provided staff development to help teachers integrate the devices into their instruction, they have not insisted on particular Chromebook strategies. Instead, teachers are free to use the devices in support of their instructional goals.



"Chromebooks were our device of choice, because the price was right and they had a keyboard."

For instance, to improve students' writing and communication skills, many teachers are using a cloud-based digital service called Turnitin to facilitate peer review of written assignments.

Students upload their writing to Turnitin, where they can review and make substantive comments on each others' work. Using a software feature called PeerMark, multiple students can review and comment on the same submission.

Students learn to write more effectively from the act of providing constructive feedback to others, research suggests. What's more, their own document revisions tend to be better when they are based on feedback from several of their peers rather than from a single teacher.

The Chromebooks also support activities such as online research, multimedia creation, and formative assessment to check for student understanding. "Students are able to explore the content at a deeper level," Bement said.

The Chromebooks have proven to be so popular with teachers and students that CJUHSD has doubled the number of mobile carts in its schools—and the district expects to double this number again soon, bringing the total number of devices to 320 for each campus.

Bement attributes this success to the district's focus on letting instructional goals drive technology use, and not the other way around.

"Through peer encouragement, some of our most reluctant users have become enthusiastic supporters—but only because they saw how the Chromebooks could deliver instruction more effectively," he said. "It's not about the technology; it's about the curriculum, and how Chromebooks can best support this."

Putting instructional goals first has been pivotal, but here are three other keys to the district's success.

1 Ensure a 'Starbucks-level' experience.

To make sure students and staff can get online without any delays, CJUHSD is in the process of upgrading its network infrastructure from 1 gigabit per second (Gbps) to 10 Gbps of bandwidth between schools. The district also plans to replace its current wireless infrastructure with new higher-speed 802.11ac access points in each building.

"It's not about the technology; it's about the curriculum, and how Chromebooks can best support this."

"Our superintendent's goal is to support a Starbucks-level experience for every student," Bement said. Ultimately, the district wants to be able to support 70,000 devices in its schools, which works out to at least two devices—such as a smartphone and a Chromebook—for every user.

2 Provide plenty of support.

CJUHSD has a full-time technology support person at each school, so if anything goes wrong, someone is there to fix the problem. Just as importantly, the district employs four instructional technology coaches who are available to help teachers design lessons that take full advantage of the Chromebooks.

Teachers can request one-on-one time with a technology coach during their free periods, and many teachers also ask coaches to co-teach a lesson with them if they are not completely comfortable. "We also encourage our instructional technology coaches to pop into classrooms throughout the week and ask, 'How's it going? I'm here to help you in any way you need.' We're trying to provide a safety net for teachers," Bement said.

3 Rely on an experienced partner.

PCM-G has been much more than just a technology vendor: The company has been a full partner in the district's Chromebook initiative, Bement said—offering valuable advice as well as competitive pricing.

When CJUHSD was looking to pilot new 802.11ac wireless access points, the district considered several different wi-fi suppliers, including a few lesser-known companies.

"PCM-G was able to have good conversations with some of those up-and-comers to discuss their long-range vision," he said. "In some cases, they discovered some strong reasons to suspect those companies wouldn't be around for the long term." PCM-G's due diligence helped the district find a stable wi-fi supplier with a bright future.



CHROMEBOOK INTEGRATION CHECKLIST

To ensure that your initiative is a success, here's a handy checklist of items to consider as you move forward with Chromebooks in your schools.

Planning

✓ Do you have a vision for how Chromebooks can enhance teaching and learning in your classrooms?

- Have you worked with your instructional designers to make sure Chromebooks support your curriculum goals?
- Have you looked at Chromebook implementations in other districts to get ideas for your own initiative?
- Have you evaluated whether Chromebooks can support your legacy applications—and if they can't, might software virtualization resolve this issue?

✓ Do you have a plan for how Chromebooks will be distributed?

- Will you roll them out all at once or in phases? If you're planning a phased rollout, how will you address concerns about equity of access?
- Will you let students take the devices home? If so, will you require families to buy insurance to cover lost or damaged Chromebooks? Can you configure the devices (and your network settings) to apply Children's Internet Protection Act (CIPA) filtering rules from home?

✓ Do you have buy-in and support from key stakeholders?

- Have you involved all stakeholder groups (administrators, teachers, parents, and students) in the planning process?
- Have you communicated your vision and goals for using Chromebooks to stakeholders effectively? Have you listened to their needs and concerns, and addressed these in your planning?



✓ Does your network infrastructure support the use of Chromebooks in your classrooms?

- Have you figured out the network capacity required to have all students online and using Chromebooks at once? (STEDA's broadband recommendations might serve as a guide: at least 1 Gpbs per 1,000 students/staff to the Internet and at least 10 Gpbs per 1,000 students/staff between schools by the 2017-18 school year.)
- Have you conducted a gap analysis to determine your network needs and formed a plan to meet these needs?
- Have you considered the resiliency of your network and issues such as failover, security, reliability, and scalability?

Purchasing

✓ Have you properly budgeted for your Chromebook initiative?

- Have you anticipated the costs involved with digital instructional materials, training, support, and upkeep? Do you have a plan for meeting these costs?
- If you are using grants, bond money, or other one-time funding sources, do you have a plan for how you will sustain your Chromebook initiative and refresh the devices when needed?

✓ Have you considered creative funding options to help you pay for your Chromebook initiative?

- Have you exhausted all potential grant sources, such as Title I, E-rate, or state ed-tech programs?
- Have you looked for ways to replace existing costs or save in other areas by implementing Chromebooks? (For instance, can you replace textbook costs with Chromebooks and digital curriculum materials, or save on paper-based communications by going digital?)
- Have you considered approaching your community with a local bond issue or referendum?
- Do you belong to a state or local purchasing consortium? Have you considered how you can take advantage of bulk purchasing rates?
- Have you explored leasing, and whether it makes sense to lease or buy Chromebooks?

✓ When buying Chromebooks, have you followed all necessary purchasing procedures, such as issuing a Request for Proposals and evaluating bids as required by state or local procurement laws?

✓ Have you chosen a stable and experienced provider who can serve as not just a vendor, but a full partner in your Chromebook initiative?

- Does your provider offer competitive pricing and exceptional customer service? Does it have broad experience in the education market and an understanding of the needs of K-12 schools?
- Does the provider offer consulting and other expertise that can help your initiative succeed—such as network design experience, installation, training, and support?
- Does the provider offer an optional white glove service that can help you properly configure the devices, so they are ready to use out of the box?

Implementation

✓ Are your teachers prepared to use Chromebooks effectively as a learning tool?

- Have you given your teachers a chance to explore the devices on their own and become comfortable with the technology before rolling Chromebooks out to students?
- Are you providing opportunities for both formal and informal professional development on a recurring, ongoing basis? (These should include opportunities to collaborate and share strategies with colleagues, opportunities to learn from both colleagues and instructional coaches, and 24-7 access to resources such as instructional videos, tutorials, and exemplary lesson plans.)

✓ Are your students prepared to use Chromebooks effectively as a learning tool?

- Have you defined the rules for using Chromebooks in class, expectations for student behavior, and consequences for breaking these rules? Have you clearly communicated this information to both students and parents?
- Have you set up the Google management console to support proper Chromebook use in your schools? Are you monitoring student use and following through on your acceptable use policy?
- Are you teaching, supporting, and encouraging responsible digital citizenship throughout the curriculum—such as how to evaluate online sources, how to credit sources appropriately and avoid plagiarism, and how to respect others' opinions online?

✓ Are you providing the technical support necessary to sustain Chromebook use in your schools?

- Do you have the capacity to address and resolve technical problems quickly as they arise?
- Do your staff and students feel their questions are answered promptly and courteously?
- Are your technicians up to date on the latest Chromebook and Google technologies, strategies, and methods?

✓ Are you supporting a culture of effective Chromebook use in your schools?

- Have you created an environment in which teachers feel safe to experiment and take risks in their instruction?
- Are your administrators and teacher leaders modeling effective Chromebook use for others? Are you recognizing and rewarding effective uses by your staff?
- Have you empowered your leaders to be “change agents” in their schools? Are you providing opportunities for leaders to grow and stretch their horizons, such as by attending Google conferences and other professional learning opportunities?
- Are you evaluating your Chromebook success? Have you established goals and metrics for evaluating success, and are you continually assessing your progress toward these goals and considering how you can improve?

RESOURCES: WHERE TO LEARN MORE

Here are some links to additional resources that can help you implement Chromebooks effectively in your schools.

Google resources

Google Apps for Education

<https://www.google.com/edu/products/productivity-tools/>

Google Apps Education Training

<https://www.google.com/edu/training/>

Google Apps Learning Center

<http://learn.googleapps.com/>

Google Apps IT Certification Courses

<http://certification.googleapps.com/admin>

Chromebook resources

Considering a Chromebook?

https://support.google.com/chromebook/answer/3265094?hl=en&ref_topic=3399709

Connecting your Chromebook

<https://support.google.com/chromebook/#topic=3399763>

Managing your Apps

<https://support.google.com/chromebook/#topic=3399764>

Programs for Educators and Students

<https://www.google.com/edu/resources/programs/>

Chromebook Teachers Group

<https://groups.google.com/forum/?fromgroups#!categories/chromebook-teachers>

Chromebook Help Center

<https://support.google.com/chromebook/#topic=3399709>

PCMG resources

Networking Solutions

<http://www.pcmg.com/n/msc-511#activeTab=id01>

Endpoint & Mobility Solutions

<http://www.pcmg.com/n/msc-512#activeTab=id01>

Security Solutions

<http://www.pcmg.com/n/msc-440#activeTab=id01>

Procurement & Logistics Services

<http://www.pcmg.com/n/msc-480>

Consultation & Implementation Services

<http://www.pcmg.com/n/msc-478>

ABOUT PCMG



For more than 25 years, PCMG has been serving the needs of educational institutions, providing solutions from 21st-century classroom technology to operational technology infrastructure. Our goal always is to offer the leading solutions and services at competitive prices, with fast delivery and outstanding service, including these Chromebook preparation services:

White Glove Service – prepares Chrome devices for teachers and students so they are ready to use right out of the box.

Etching and Asset Tagging Service – ensures Chromebooks are easily identifiable with your school logo, name or property information.

From Chromebooks to the data center—and everything in between—PCMG offers what you need to meet your school's IT mission.

For more information, visit <http://www.pcmg.com> or call 800-625-5468

eSCHOOL NEWS

This white paper was produced by eSchool News, a leading publisher and producer of K-12 educational technology publications and events, dedicated to the advancement and wise use of technology to improve teaching and learning for all. eSchool News offers ed-tech decision-makers a range of products—including magazines, white papers, websites, newsletters, webinars, and other products—that provide in-depth coverage of the latest innovations, trends, and real-world solutions impacting the education community. Explore more at <http://www.eschoolnews.com>.