K-12 BLUEPRINT

Chromebook* Powered Remote Learning During COVID-19

Usage Study
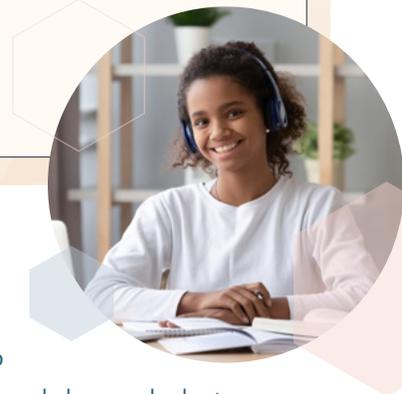
For today's connected teens, a typical day of learning, socializing, and downtime looks a lot different than it did even just a few months ago. Remote learning and social distancing are driving the demand for constant connectivity, and for devices powerful enough to handle increased workloads.

The transition to remote learning is advancing the need for computing devices that can uphold the traditional tasks of a face-to-face classroom, and more, to support student learning. Digital classrooms that rely on collaborative involvement and communication among students also demand powerful multitasking devices—so students can stream an instructional video, take notes, communicate with classmates, browse the web, and finish a homework assignment—often at the same time.

In homes across the country, families are finding that the latest generation Chromebooks powered by Intel® not only keep up with their new technology-based demands, but often exceed their expectations for an affordable, portable computing device. Most students rely on their Chromebooks for rigorous remote learning as well as for maintaining social connections with friends and family. Now, more than ever, they need devices that are reliable, flexible, and secure.

When it comes to staying connected during the quarantine, Taylor's got it all figured out. She is an 8th grader at Meadow Park Middle School who, until recently, would have described her favorite thing about school as "hanging out with my friends." Taylor has always been a highly focused student, and her parents have been impressed with the way that she's handled the transition to remote learning.

Improved Performance[1]

- **Web browsing** — 91% faster
- **Web app performance** — 62% faster
- **Overall system performance** — Up to 50% better
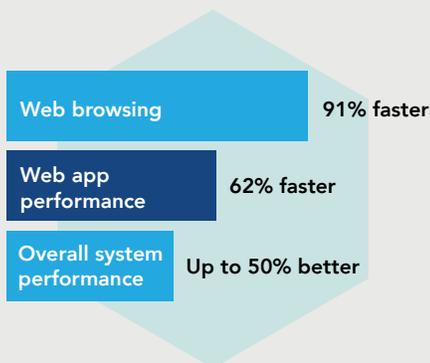
Since their launch, Chromebooks have evolved from a mere curiosity to a go-to device for K-12 education. With the unforeseen transition to remote learning due to COVID-19, Chromebooks have further expanded their role as a key technology in supporting educators, students, and families. The latest generation of Intel® processors have resulted in Chromebooks that are even faster and more powerful than their predecessors—making it easier for multitasking students to manage online workloads while keeping in touch with their friends and family.

[1]Performance results are based on testing as of October 25th, 2019 and may not reflect all publicly available security updates. Measured by G Suite workloads comparing Intel® Pentium® N5030 processor with Intel® Pentium® N4200. For more complete information about performance and benchmark results, see www.Intel.com/benchmarks.

(intel®)

When her school closed due to COVID-19, Taylor relied on her parents to figure out how she could maintain her current class load while the whole family made the transition to working and learning from home. They decided that she needed her own device, and they bought her one of the latest Intel-based Chromebooks.

Taylor had her Chromebook up and running in no time. After logging in with her school account, she was instantly connected with all of her existing work, extensions, and apps. Taylor quickly embraced all of the different ways she could use her Chromebook to maintain some sense of familiarity—whether it was keeping in touch with her friends, connecting with her classmates about schoolwork, or continuing projects that she had started prior to the school closure.

Remote Learning Resources for Parents and Educators

Parents and educators alike use Chromebooks to stay connected while reimagining the modern classroom: bridging the gap between traditional learning and remote learning. Intel® has sponsored the creation of two guides and a collection of resources to support authentic learning from home.

Educator's Guide to Elearning
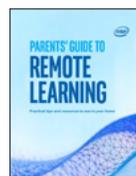
Parents' Guide to Remote Learning

A Day in the Life of a Chromebook

After just a few days, Taylor has settled into her daily routine of remote learning. Her morning begins by logging into her Chromebook and checking Google* Classroom for updates. She views the day's assignments and gets ready for her morning Zoom* check-in with her homeroom class.

While waiting for her teacher to start the meeting, Taylor hears her mom chatting on her own video conference call with a client. Taylor unplugs her Chromebook and carries it to the other side of the house, where she knows it will be quieter. Then Taylor settles in, plugs in her headphones, and listens as her teacher begins the meeting.

Taylor's homeroom teacher reminds the class about their video blog due at the end of the week, and then surprises the class with a link to her *own* video blog about how she's been adjusting to life at home since COVID-19! Taylor downloads the video while her teacher finishes up the meeting. As she listens, Taylor searches online, pastes an image into her homework, and types notes about next week's assignment. Then her Chromebook "pings" and she clicks on a message from her classmate:

OMG! Ms. G is the best.

Loved her video.

Hey did you get the link to the assignment she was talking about? My cat jumped on my keyboard LOL!

Taylor responds to her friend and then gets back to work. She turns on her webcam and uses Loom*, her favorite Chrome extension, to record another entry for her video blog. While the video uploads to Google Classroom, she checks her phone and scrolls through Instagram* to see what her friends are up to. She posts on her feed:

taylor007

25 likes
taylor007 Face shields are going to the 3D printer today! So excited!
#HackThePandemic
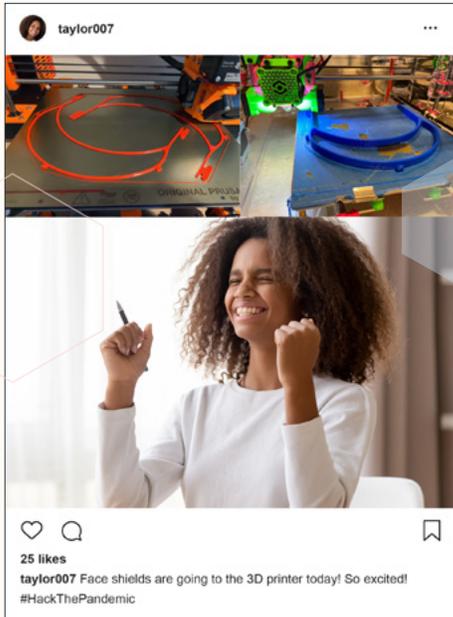
What began as an engineering challenge for her design class quickly took on real-life significance when COVID-19 hit. When Taylor heard about a shortage of PPE (Personal Protective Equipment) for local nurses and doctors, she was reminded of something her Project Lead the Way* teacher Mr. Suarez often says, "Good design begins with empathy." Taylor felt compelled to help out in some way. Along with a group of her classmates, she researched and watched videos on her Chromebook about how to create face shields using a 3D printer. Since downloading a 3D model for the plastic headband a few weeks ago, Taylor has been busy adapting and redesigning the piece to fit the clear plastic sheets provided by her teacher.

Intel®-based Chromebooks for Learning[1]

Improved performance for education

- Students take up to 58% less time to perform education-related spreadsheet work

- Educators and students can experience up to 91% faster web browsing

- Students take up to 49% less time to finish multimedia tasks

Engaging learning experiences

- Seamless sharing and collaboration among students

- WiFi 5-ready to support high-performance networking

Flexible usage models

- Deployable and manageable from a single, web-based console

- Variety of form factors including 2-in-1s or thin, lightweight notebooks

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Excited to do her part, Taylor launches Tinkercad* on her Chromebook and plugs in a USB-C mouse for some of the more detailed 3D modeling work. She's checking in with her design teacher this afternoon and can't wait to showcase her work so far!

Though lost in her work, Taylor's rumbling stomach tells her that it's time to take a short break. While rummaging for food, she notices that the fridge is looking a little empty. Taylor offers to help out her mom and order a few groceries for delivery. She grabs her Chromebook, flips it into tablet mode, and starts adding items to the order.

With that taken care of, Taylor decides to take her Chromebook outside for a change of scenery. With the flexibility of tablet mode, reading is a breeze and Taylor quickly finishes her literature assignment. She types a reflection and posts her response online.

In what's become her normal routine, Taylor heads out after lunch for a walk with her mom. The walk re-energizes Taylor and, along the way, she uses her phone to take a video of herself. When she gets back home, Taylor uploads the video to her Chromebook. She opens TikTok* to level-up her video with some music and special effects.

That afternoon, Taylor gets ready to present her progress on the COVID-19 face shield design. She jumps on a video call with her group members for a last-minute question about the size of the shield. Then Taylor opens the Tinkercad file and logs into Zoom so she can share her screen. She checks how much battery power she has left and, since she doesn't need to plug in, she moves her Chromebook to the only quiet place in the house right now—the office. As Taylor shares her work, Mr. Suarez remarks how impressed he is by the fine detail she's included in her 3D model. He asks her to share the file on Google Drive*, so he can get started printing it when he visits their school later that afternoon.

With her work finished, Taylor decides she deserves a little downtime. She plays Another Eden* for a while—a role-playing game she found on Google Play*—on her Chromebook and then streams a 4K Netflix* video that her friend Courtney recommended. Taylor can't *believe* how the show ended! She video chats Courtney on her Chromebook to catch up and talk all about it. Just as she's getting to the best part, Taylor's mom calls her for dinner. She closes her Chromebook and leaves it on her bed so she can call her friend back later.

After a full day of learning, connecting with friends, and enjoying some of her favorite downtime activities, Taylor plugs in her Chromebook and gets ready for bed. It's been a busy day, and she's pleased with everything she was able to accomplish. As for posting that TikTok video…. well, there's always tomorrow!

Chromebooks by the Numbers

YoY shipment growth
17% increase

Total share of 2020 notebook market
25%

Total expected sales in 2020
20 million

Source: Electronics Weekly

(intel)

How Did the Chromebook Perform?

Taylor's new Intel®-based Chromebook "flexed its muscle" as a secure, powerful device that helped her to stay productive and connected throughout the day.

With no setup required, Taylor was able to simply log into her Google account and begin studying right away. And the built-in webcam and USB-C port seamlessly met her learning demands throughout the day.

Taylor's world moves fast. Even while running multiple applications and extensions, downloading a file, and browsing information online, her multitasking Chromebook never slowed her down.
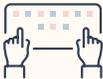
Taylor's Chromebook provided access to all of the essential apps she needed for studying at home and connecting with others: everything from Tinkercad to Zoom! And thanks to the 2-in-1 functionality, Taylor moved from typing to touchscreen and back again, without missing a beat.

From virtual class meetings to streaming 4K video and posting on social media, Taylor's Chromebook provided high-performance network connectivity when she needed it most.

Finding a quiet work space can be a challenge when families are working and learning from home. Weighing in at just a few pounds, Taylor was able to carry her lightweight Chromebook from room to room. And the extra durability means that Taylor's parents are less worried about damage from drops or spills.

All-day battery life meant that Taylor never had to interrupt her learning to plug-in and recharge.

Taylor's parents understand the inherent risks of being online. They are reassured, knowing that her Chromebook keeps Taylor's data safe from malware thanks to multiple layers of security and automatic updates.

The Right Chromebook for Learning

Explore how Intel®-based Chromebooks compare against other processor manufacturers when running typical classroom learning scenarios.

View the report

Discover additional resources for learning at
www.Intel.com/education