

# Laptops Unleashed

A Middle School Experience

By Pamela Livingston

**Subject:** Ubiquitous computing

**Grade Level:** K-8 (Ages 5-13)

**Audience:** Administrators, technology coordinators, technology integration specialists, technology facilitators, teacher educators, library media specialists, teachers

**Technology:** Laptops

**Standards:** NETS•S 1-3 (<http://www.iste.org/standards/>)

The day starts. Students arrive in their parents' cars, climb out, and carry or wheel backpacks in a morning scene similar to most independent day schools in the country. But there's a difference—the older students are carrying metal briefcases. The briefcases, bright silver and durable-looking, carry the clear marks of middle school ownership as they sport stickers touting favorite sport teams or musical groups. This is The Peck School's sixth year of a successful laptop program, and school is about to begin.

### The Airport Lounge

Students arriving early head directly to the cafeteria. On the wall is a flying-saucer-shaped device, a wireless network access point, intermittently blinking its green light. Students from kindergarten to eighth grade share this morning space, but it becomes clear quickly which students are in seventh and eighth grade.

Congregated in groups of nine around round tables, seventh and eighth graders open briefcases, share stories, talk about homework, relate the inside story of last night's field hockey game, and take out their white iBooks. They seamlessly connect to Peck's network for e-mail, the Internet, printing, and accessing saved documents. A few students plug into electrical outlets but most operate from the computer's internal battery knowing they'll get through the day on their overnight charge. This type of self-directed activity is indicative of how we see students at this age able to act and one reason they have laptops.

Homework and assignments get a final spell-check before they're sent to a networked printer in their home-room or their first class. A quick look

at the homework conference allows them to check assignments for the rest of the week, and some take advantage of this early time to post a message to the Student Council suggestion box. This student-led forum really works; last month a lively discussion on salad dressings resulted in creamy Caesar as a daily choice. Many students also double-check the test/major assignments calendar to see what lies ahead; it's easy to see history tests (red), science projects (green), English assignments (purple), and so on. It's clear why our Upper School Head, Helen McFerran, terms this phenomenon "the Airport Lounge" referring to the Apple AirPort devices along with the "waiting and working" nature of the space.

### Off to Classes

The bell rings, students pack their book bags, place laptops in their briefcases (which have been custom-fitted with foam just the right size for their iBooks), and move to class. Some enter the main building where the juxtaposition of a beautiful, traditional ornate wooden staircase, harking back to Peck's roots of nearly 100 years ago, contrasts with the AirPort Extreme wireless equipment nearby. Teachers in hallways await, their own iBooks set up at the ready. Many faculty members have already checked and answered their e-mail, adjusted any homework assignments, and checked the school electronic calendar for events of the day.

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grounded in the goal of having curriculum lead all decisions. Technology belongs where it makes sense, where teachers accept it, and where educational goals are furthered and enhanced by its use.

In math classes, smart boards are often used to demonstrate principles. This morning, a teacher is leading an eighth grade group, which will eventually prove the Pythagorean theory. It begins with a smart board connected to a projector, Geometer's Sketchpad running, and students following along on their own laptops with the same software. Creation of a triangle so that the aspect ratio remains constant, and so that the ratio of all sides remains the same regardless of the physical size, is the first project. The teacher demonstrates it. The teacher, Karl Paranya, circulates, saying his job is to break their constructions. If he drags a corner and the triangle does not stay together, it's broken and needs to be reconstructed. Karl says doing this hands-on work helps the students to get the underlying concept. He's not interested in answers; he's interested in their understanding.

Next door, a history class discusses basic tenets of major Western and Eastern religions. The discussion is facilitated by a PowerPoint document bulleting ideas students bring up from readings done in class; when they raise a point the teacher clicks and a word describing that concept appears. Students use their laptops, set up in Microsoft Word with two-column note taking, and jot down ideas during their discussion. Later, they will create Web pages demonstrating their

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knowledge of an aspect of a major religion. Vic Taylor, the teacher of this class, pauses to say, “because students have different learning styles—some learn more by audio and some by visual means—the use of technology using various media techniques gives all students an opportunity to make the best use of classroom lectures and presentations.”

Another history teacher, Martha Higgins, adds, “Wireless laptops have made such a difference to our history classes; students are able to access Web sites with ease and instantly answer those inevitable unanticipated questions that arise during every discussion.”

Peck involves fifth- and sixth-grade students in our laptop program; although they don't have a laptop to take home, they do share carts of laptops in their classroom. French students in fifth grade retrieve a laptop, bring it back to their desk in their homeroom, connect to the computer network wirelessly, and retrieve an e-mail message from their French teacher. The e-mail contains a voice message, in French, asking them to respond in French. They do, and send the voice message back. This becomes a sample of the child's spoken use of the language and an aid for the teacher in assessing usage and accent. This is another example of how seamlessly a laptop computer can provide a unique, accessible digital assistant for learning. Computers in themselves are a motivator and the children enjoy the work, completing the assignment

ahead of schedule. Leslie Maguire, the French teacher, says, “Using the laptops in the classroom has opened up many avenues for integration of technology into the French curriculum.”

In sixth-grade English, students use wireless laptops to write articles following up their recent science-infused trip to Stokes Forest. Students write personal reports, poems, or articles on their experiences or things they learned and save them to a group shared folder. Students and teachers then design a newsletter with these articles to be shared with all the other students and parents.

Wireless connectivity means no trips to the computer lab and true physical integration can occur; the English teacher, the science teacher, and the technology teacher can all cycle in and out of the classroom and all resources are handy and shared. A student comments, “I find it very convenient that we can access the laptops with such ease just as long as we have permission.”

### **Recess and the Laptop Help Desk Area**

Recess is laptop-free and takes the form of a social and snack break. Children play basketball or other activities, and they can move about the school. We built square, open cubicles with locking cables so the students can store their laptops safely and securely during recess, physical education, lunch, or other times it's not needed.

Sometimes, however, a problem with a computer causes a student to come to the Upper School Computer Lab Laptop Assistance Help Desk. Always manned during recess, with an experienced network manager and a Web manager/technical support specialist ready to help, this area is equipped with batteries already charged, spare laptops, and extra cables.

Our policy is to allow students to make changes to the computer, customize it, adapt it, and put legally purchased or downloaded software on the computer, but to require that they face the consequences if what they've done causes problems. Records about every computer are maintained here in the Upper School lab. A form given out with the computer, signed by the student and his or her parent, is the initial record. Several times a year, the laptops are collected and a new document is created. Any damage or software issues are addressed, and software updates are handled as needed.

When the program was planned, we added one full-time technician to the technology department staff. Currently, there is a department head, a lower school technology coordinator, an upper school technology coordinator, a network manager, and a Web manager/technician. Investment in personnel has paid off in the rewards of a truly integrated technology curriculum: there's no need to create duplicate lesson plans for when the computers don't work. If something goes awry, teachers call the tech support hotline, and the technicians are dispatched over walkie-talkies.

### **Science Multipurpose Lab**

After lunch, some students proceed to science class. As students take out



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their iBooks, Don Diebold, science teacher, expresses his feelings about laptops for this class, “Having laptops in the seventh- and eighth-grade science programs has enabled us to spend more time on what is really important, learning how to think.” The lab is equipped with probes to test temperature and movement. A lab on skin sensitivity is going on today—students use straight pins to lightly touch the back of one another’s hand and record reactions. Students input data into a spreadsheet, create charts, draw conclusions, and print their work at the end of class.

Most teaching with computers at Peck is interactive, with the teacher spending most of his or her time walking around to see how the students are doing their work. Recently, we’ve been using Apple Remote Desktop (ARD) to be sure no “surfing” is going on just after the teacher passes. With ARD, faculty can view all screens to ensure that everyone is on task. Computers are engaging digital assistants, but the Internet is a powerful draw, especially when you have a broadband connection to the Internet at your beck and call. Infractions are dealt with, and everyone knows we mean business when it comes to appropriate use of computers in school.

### Activities—Upper School Computer Lab

It’s Friday, so that means activities. On most Fridays, Upper School students sign up for various activities that provide enrichment, fun, and an interesting change from the rest of the week. Laptops are locked away, and some children participate in a Web Page class, designing and executing their own Web pages using

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the equipment available in the Upper School lab.

Peck has two computer labs, one in the Lower School and one in the Upper School. The Lower School technology coordinator teaches K–4 classes with the teachers; one class involves integration with academic subjects and another class is for learning computer skills. Our Upper School computer lab is available for fifth- and sixth-grade computer classes alternated with laptop use in fifth- and sixth-grade classes. It’s also available for teachers to schedule lab time with their students. We find that this space has changed and is used less now that we have wireless connectivity and laptops everywhere, but is still needed for whole class activities and presentations. The computers here are also faster simply because they are physically connected to the network and do not use slower wireless access.

### Let the Games Begin

Athletic games for some begin. Today, there’s an “away” field hockey game at another independent school. Children suit up in athletic uniforms, roll or carry their book bags, and carry their laptops in their silver briefcases. Parents drive to the games and several parents’ vehicles are designated the “laptop cars.” Yet another reason for hard-sided cases becomes apparent, as the back of a Suburban is stacked with 10 laptop cases. The tale of the laptop case run over by an SUV is oft repeated but thankfully not reenacted.

Those without a game await pickup by parents. We had to put the

kibosh recently on laptop use at the pickup area. Our children are very comfortable with computers and take them out at any time of the day, but sitting on cement with a laptop perched precariously on your lap seemed like an accident waiting to happen.

### Home

A quick check of the function “who’s online” from our e-mail system shows quite a few students active. Because all homework is posted on e-mail, and because there are a number of other things to do with e-mail, it’s not surprising to see so many names come up. Peck’s whole child education translates into support at school and home—an e-mail message from a student who also had done “who’s online,” viewing my name, sends an e-mail question to me. Time to take the teacher role for another inquisitive mind; this one armed with an electronic assistant to help her hone, shape, and analyze her thoughts and questions. It’s just a normal day coming to a close at a traditional independent school that’s found the merging of education and laptops to be enriching, rewarding, and meaningful.



*Pamela Livingston, head of technology for the Peck School in Morristown, New Jersey, is charged with planning, and implementing a laptop program now in its sixth year of operation. She has worked in*

*technology education for the past 11 years. Before education, Pamela was employed in the computer departments for several large corporations. She has written before for L&L and has also written for PC Magazine and PC Sources. In May, she anticipates receiving an MS in education and technology upon the completion of her study and thesis entitled “Seventh Graders and 24/7: A Qualitative Study of Seventh Graders Using Laptops.”*