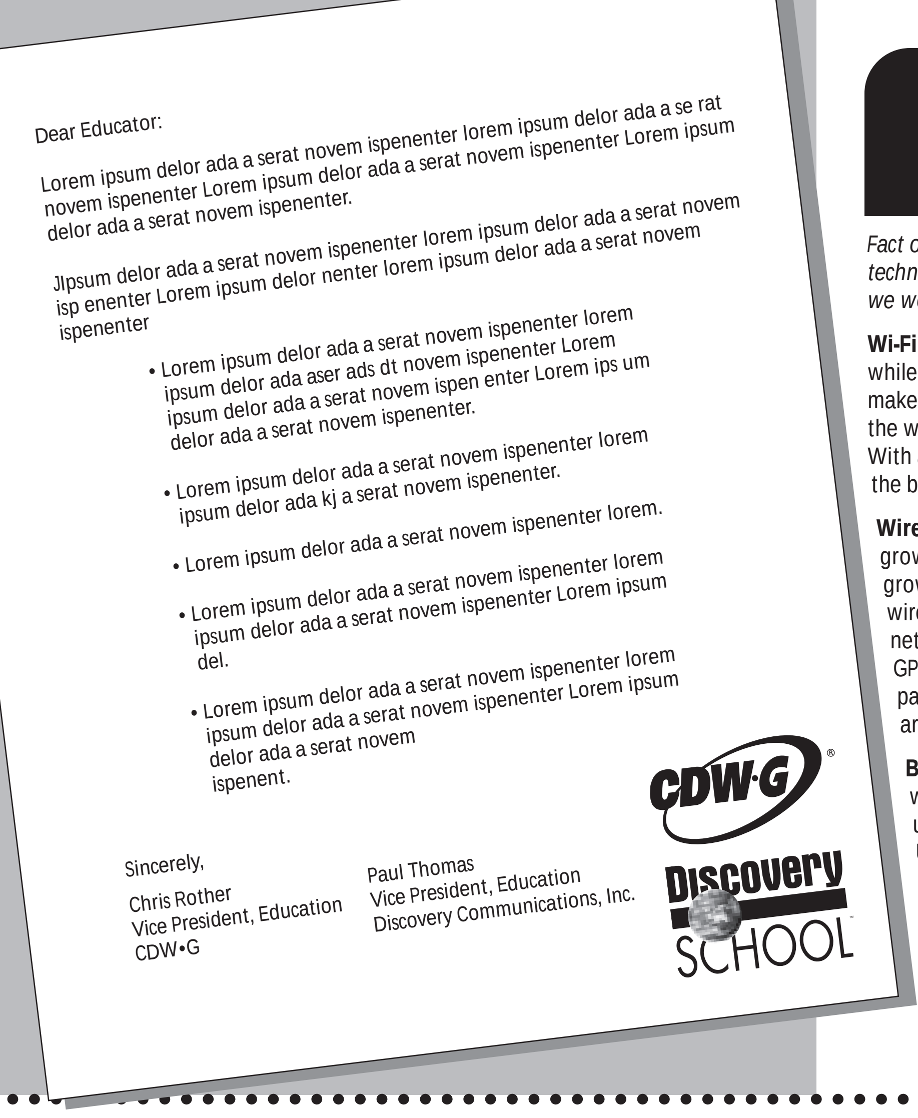

Dear Educator:

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Sincerely,

Chris Rother
Vice President, Education
CDW•G

Paul Thomas
Vice President, Education
Discovery Communications, Inc.

BELIEVE IT OR NOT

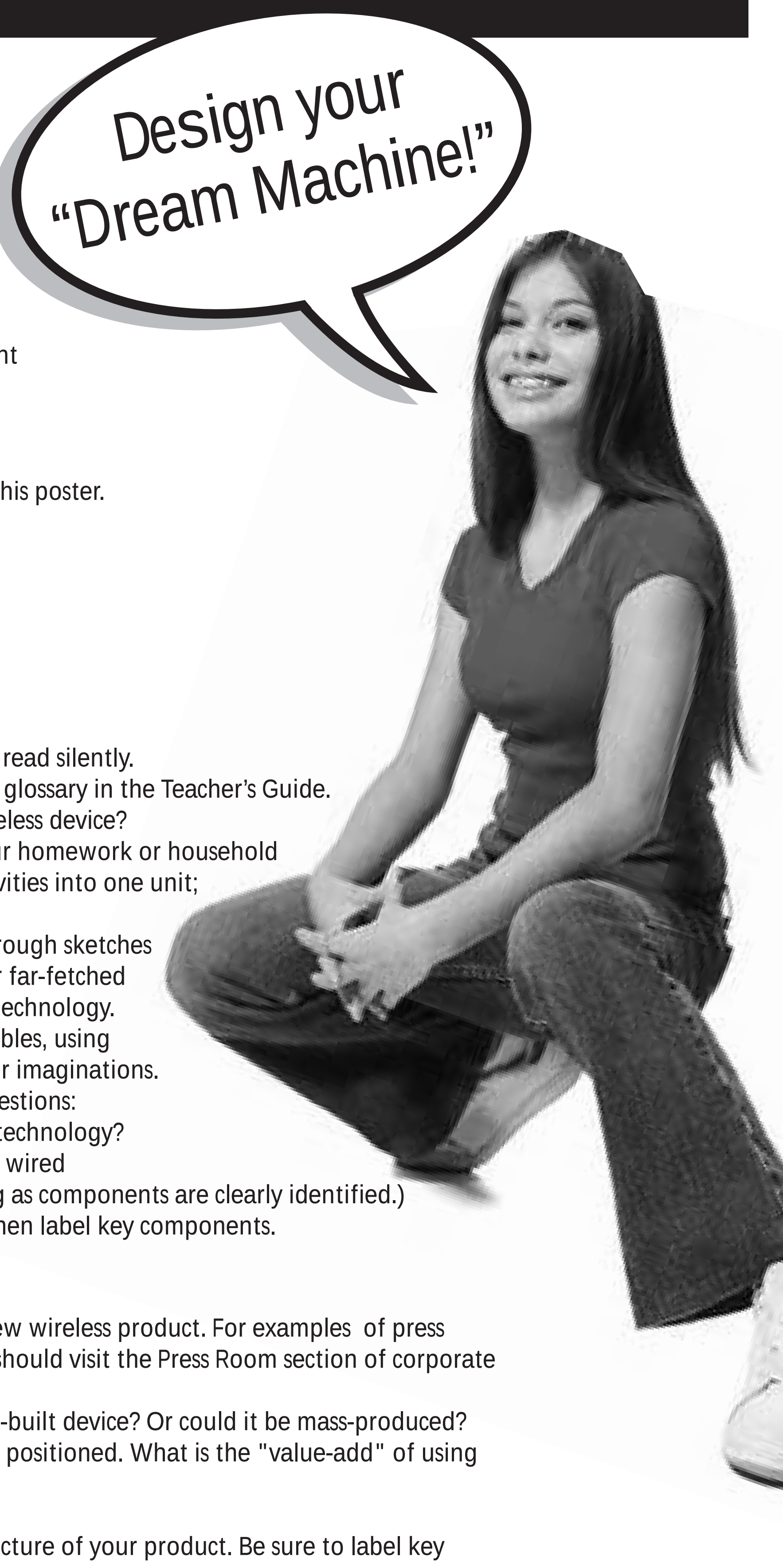
Fact or science fiction? Though some wireless gadgets may look like gimmicks, the technology is real and here to stay. It's revolutionizing the way we learn, the way we work, and the way we play.

Wi-Fi Surfboard—Thanks to Intel, Type A surfers can now email and surf the Web while catching some waves. (Whoa, dude, better make that *between* waves.) To make a splash at a high-profile event in Devon, England, the chipmaker unveiled the world's first wireless surfboard, sporting a built-in tablet PC and video camera. With a high-speed hotspot configured on the beach, and solar panels built into the board, the contraption poses some interesting possibilities, indeed.

Wireless farming—Believe it or not, the farming industry is one of the fastest growing high-tech sectors. Cotton farmers in Georgia and Mississippi, orange growers in Florida, and even cattle ranchers in South Dakota have caught the wireless bug, and news of their cutting-edge methods is spreading fast. Wireless networks are already being used for insect control and irrigation, and plans for GPS-controlled robotic tractors are in the works. From monitoring vegetable packing to feeding livestock, wireless is maximizing efficiency in virtually every area of agriculture.

Bluetooth Umbrella—Part James Bond, part Grateful Dead. What happens when random clusters of people gather together with Bluetooth–activated umbrellas in a public space? It's a beautiful experience, man. But that's not all. University students in Ireland have devised Bluetooth–and PDA-equipped umbrellas to research the viability of ad-hoc networks in urban spaces. Ad-hoc networks are kind of like spontaneous, free-form, Zen Buddhist hotspots that form when enough nodes randomly gather together in close proximity. They dissipate as quickly as they form, but that won't stop UMBRELLA.net from pursuing more clever ways to explore "networks of coincidence"—and wrangle public wireless access for all.

CREATIVE EXERCISE



Purpose:
A quick, creative activity to spark students' imagination and challenge their understanding of how mobile and wireless technology functions. (Note: This exercise is as much about process as it is about product. The bulk of the time should be spent on brainstorming.)

Preparation:
Make photocopies of the "Believe It or Not!" section on this poster.

Materials:
large sketch paper and pencils

Time: 15 to 30 minutes

Procedure:
- Distribute "Believe It or Not!" copies and have students read silently.
- Write a definition of "wireless" on the board, using the glossary in the Teacher's Guide.
- Pose the question: What's your idea of the ultimate wireless device? (Example: something that might lighten the load of your homework or household chores; that might combine all your favorite leisure activities into one unit; that might win you a Nobel Prize.)
- Assignment: Working solo, brainstorm ideas and make rough sketches of your dreammachine. Devise something as practical or far-fetched as you like, but make sure it's based on actual working technology.
- Instruct students to begin with rough sketches and scribbles, using simple pencil and paper. Encourage them to stretch their imaginations.
- After just 5 minutes, stop and ask the students these questions:
  - How plausible is this device? Is it based on actual technology?
  - Is it entirely wireless? Or does it also require some wired connections or infrared? (The latter is fine, as long as components are clearly identified.)
- Have students refine sketches for 5 more minutes and then label key components.

Extensions:
1) Write a press release announcing the launch of your new wireless product. For examples of press release and product announcement formats, students should visit the Press Room section of corporate websites (e.g., Ap IBM).

Questions to consider: Would this be an exclusive, custom-built device? Or could it be mass-produced? This will affect the cost, and therefore how the product is positioned. What is the "value-add" of using wireless in this device?

2) Use graphics software to draw and design a detailed picture of your product. Be sure to label key parts and features.

QUIZ

What is Bluetooth?
a) A handheld device that offers wireless Internet access and streaming audio/video.
b) The name of a 10th-century Viking King who unified Denmark and Norway.
c) An infectious gum disease first diagnosed in horses during the Civil War.
d) A short-range radio link between laptops, mobile phones, wireless gadgets and network access points.

What is war chalking?
a) Marking firewalls in companies to comply with annual IEEE safety audits.
b) Drawing with chalk on a sidewalk or building to signal an "open" company wireless network.
c) Web-based military-strategy gaming feature, used primary on handheld devices.
d) Scouting out an airport lounge or coffee shop that offers public Wi-Fi access.

What is Wi-Fi?
a) Any type of 802.11 technology.
b) A double-wide trailer equipped with GPS
c) Short for "Wireless Fidelity"
d) A Wireless LAN
e) The kind of stereo speakers your parents had in high school

What is the difference between a laptop PC and a tablet PC?
a) A tablet PC does not have a keyboard.
b) A laptop PC is wireless, but a tablet PC is not.
c) A tablet PC features a touch screen and handwriting recognition.
d) Notebooks are lighter than most tablet PCs.

Mark a plus sign (+) next to those that are "wired" and a minus sign (-) next to those that are "wireless."
Use both signs to indicate either/or.
- Laptops
- Internet
- PDAs
- Ethernet
- Telephones
- Notebooks
- Telegraph
- Tablet PCs

NOTE: *Answers to the Quiz can be found in the Teacher's Guide accompanying this poster or at www.discoveryschool.com/cdwg/quiz.*

RULES & ETIQUETTE

PDAs/Handhelds/Black ies
- *Excellent tools for organiz g student schedules and recording assignments*
- *Handy for note-taking during class, too (but always check with teachers first)*
- *Don't even consider cheating (kids caught "beaming" during quizzes have given PDAs a bad name)*
- *No gaming, no IM, no email during class. Period.*

Cell phones
- *Turn off during classes—buzzers and all.*
- *That goes for field trips, too.*
- *Keep your voice down during conversations in public places.*
- *Don't gossip; it'll come back to bite you.*

Tips:
Can you see screens from where you're sitting? If not, position desks in a semi-circle, facing outward. If kids are scattered around using wireless, then stay on your feet. The educational benefits of mobile & wireless far outweigh the risks. You just need to use common sense, stay involved, and get interactive!

While mobility presents exciting learning opportunities, it also poses administrative challenges. As devices get smaller and more portable, it's simply harder to monitor what's going on. Here's a proactive way to face potential issues head-on.

Activity:
Create a set of rules for using wireless/mobile devices in your class or lab.

Options:
1) If your school already has an official list of rules, make sure it is posted prominently. Then come up with a customized one for your classroom or lab, created (mostly) by and for the students.
2) If your school does not have such a list, work with students and then administrators to create and implement one. This should be a comprehensive list covering devices brought from home, as well as those owned or leased by the school.

Purpose:
1) To teach students to use PDAs, cell phones and portable computers responsibly, constructively and courteously, inside and outside the classroom.
2) To instill in students a sense of ownership for the equipment at school.

Procedure:
- Write three categories on the board: PDAs, cell phones and portable PCs.
- Facilitate a discussion to identify potential issues with the use of portable devices at school and on field trips. Throw out examples like cheating, chatting, gossiping, gaming, distracting others, and viewing inappropriate content. Record rules and comments on the board, dividing them by device.
- Next, have students vote on which rules to include. (Time permitting, close votes can be debated.)
- Type up the rules (or ask for a student volunteer).
- If following Option 2, send to school administration for input and authorization.
- Post on the school website!

Photo Credits, ,

GLOSSARY

2G – Digital wireless telephone technology, used mainly for voice communications. Much faster than 1G (analog wireless).

2.5G – Same as above, but also allows e-mail and basic Web browsing.

3G (third generation) – The next generation of wireless technology. With no need for dial-ups, these high-speed, packet-based networks are "always on."

802.11 – A group of wireless specifications s(e.g., 802.11a, 802.11b, 802.11g) developed by IEEE to manage packet traffic (and head off packet "collisions") over networks.

Access Point – The "AP" is the hub of a wireless network. Also called a base station, wireless gateway or wireless router.

Ad-hoc Network – When two or more wireless devices get together, without an access point.

Analog – Think of this as the opposite of digital. Represents data as a continuous stream, rather than in 1's and 0's.

Bandwidth – Measures the capacity of a network to carry data, per unit of time (e.g., kilobits per second).

BlackBerry – Whizzy two-way, wireless, handheld device, featuring phone, e-mail and voice mail (translated into text) functions, and a miniature qwerty keyboard. Highly addictive!

Bluetooth – A short-range wireless protocol that allows laptops, mobile phones, hand-helds and other portable devices to communicate with each other and to connect to the Internet. No cables, infrared or dial-ups required.

Digital – Electronic technology used to store and transmit data as discrete bits, rather than as a continuous, variable stream. In computing, these bits indicate on/off states, which are represented by 1's and 0's.

Handshake -- How a wireless phone and a wireless system set up a call.

Hot Spot – A designated public place where users can connect to a wireless network. McDonald's and Starbucks are the most well-known hangouts.

IEEE – Institute of Electrical and Electronics Engineers (the folks that developed the 802.11 family of specs).

Landline – Wired telephone service, the old-fashioned way.

Laptop – A small, portable computer. These days, many people refer to laptops as notebooks, though they are diffe

Notebook – Similar to a laptop.

Packet – A "chunk" of data sent over a network.

Packet-switched network – Transfers wireless data faster than circuit-switched networks, with no dial-ups required. (Also see 3G)

PDA – (personal digital assistant) A small, handheld device with organizer and basic text-based computer functions. Most have a touch screen and support handwriting recognition.

RF – Radio Frequency

Smartphone – Part PDA, part mobile phone, with Internet access, text messaging, and sometimes a digital camera to boot.

Tablet PC – A notebook with a touch screen instead of a keyboard. And special "ink recognition" software

UWB – Ultra WideBand

WLAN – wireless LAN (local area network)

WAP – Wireless Application Protocol – Also known as "Wireless Web" or "Mobile Web." Enables limited Internet access on portable wireless devices.

Wi-Fi – Short for "Wireless Fidelity," this trademarked technology provides short-range connections between mobile devices and Wi-Fi access points. Also referred to as 802.11, its IEEE technical specification.

Wi-Fi Alliance – A nonprofit international association formed in 1999 to ensure that wireless products from different vendors are able to work together. Products must undergo rigorous interoperability testing before wearing the "Wi-Fi Certified" logo .

Wireless – No wires, no cables, no plugs. Wireless technology uses radio frequency (RF) to transmit information, without physical connections between sender and receiver.