XQ The Super School Project

Time, Space, & Technology

How can we rethink when, where, and how learning happens?

2 EDITION

Most American high schools still rely on outdated structures that no longer work for students and educators.

Groundbreaking schools use time, space, and learning technology fluidly and creatively.

By challenging old assumptions about facilities, schedules, and modes of instruction, schools can open up exciting new possibilities for student-centered learning.

THINGS TO THINK ABOUT

01

How can time, space, and technology be used in innovative ways that enhance opportunities for students to learn and grow, and for teachers to thrive and succeed?

02

How might students and teachers spend their time during the day, the week, and throughout the school year to optimize learning?

03

How might spaces inside and beyond the school be used differently to enhance learning? Are there great, untapped spaces in your community where students could learn?

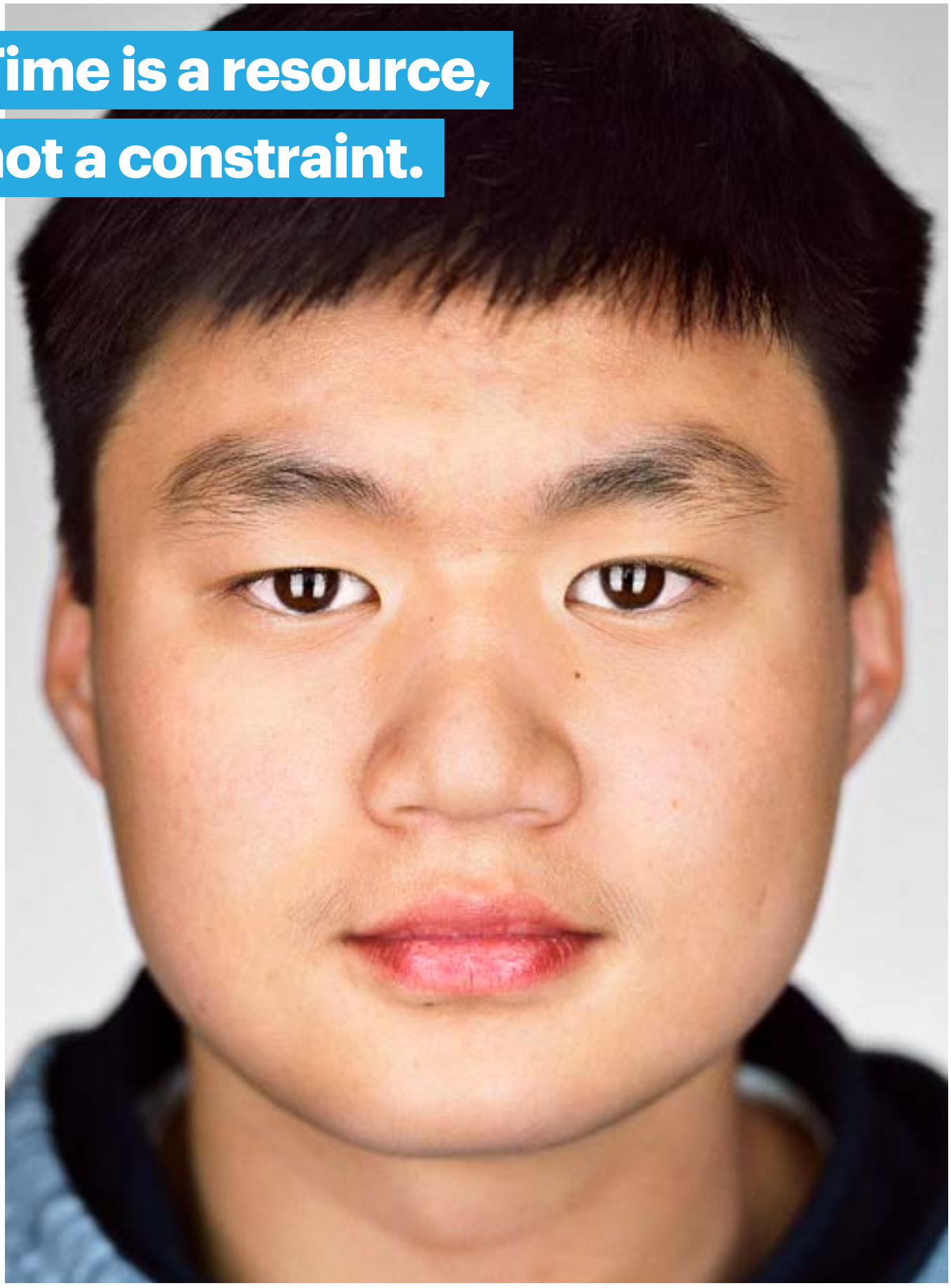
04

What technologies are most valuable for creating great learning experiences for students?

LET'S MAKE TIME, SPACE, AND TECH-NOLOGY WORK FOR, NOT AGAINST, STUDENTS

FACT 28

Time is a resource, not a constraint.



Rethink the relationship between time and learning.

One hundred eighty days. 6.5 hours a day. 50-minute classes. 8:30 AM to 3:00 PM. This schedule has been the norm for high schools for nearly 100 years. But true mastery of 21st-century skills requires a more flexible conception of time. How long should classes be and how often should they meet to make the most effective use of time?

In most schools today, classroom time is a constant, but learning—how much and how well students learn—is variable. Nicholas Donohue, president and CEO of the Nellie Mae Education Foundation, urges us to consider a new paradigm in which students have the time they need to succeed and master truly rigorous content. Some schools meet this challenge by adopting a competency-based learning model, in which students advance at their own pace, achieve certain learning milestones rather than moving in lock-step with classmates. Some schools provide more learning time during the school day, week, or year for students who need it, or to enable students to move more quickly and accomplish highly complex projects.

Schools need flexibility to adjust and vary their schedules so students and educators can engage in deep, sustained learning experiences. Freed from the bounds of a schedule-segmented day, students can immerse themselves more in discussion, engage in individual and group learning, work on interdisciplinary projects, and get field experience applying their skills in the community.

Think About →

How can schools make the most of the time available for student learning, both inside and outside the conventional school day? What learning experiences are made possible or deepened by breaking the "one period per class" rule?

A Later Start?

Research suggests that the starting time at schools is hurting adolescents, whose natural clocks aren't ready for an early start. "Adolescents are programmed to fall asleep later," says Dr. Judith Owens of the Children's National Medical Center. Because teens need eight to nine hours of sleep, waking for school at 6:00 AM can lead to sleep deprivation, affecting their performance at school and putting them at higher risk of absenteeism—and even depression.

The Waning of the Carnegie Unit

The Carnegie Unit once served the country well, argues Arthur Levine, former president of Teachers College at Columbia University. But it's time to replace this time-based standard with a more meaningful measure.

From Seat Time to Competency

Seat time requirements can make it hard to implement personalized, competency-based learning. iNACOL explains the issues and shares a map showing where states stand on credit flexibility.

Tools to Find and Use Time Better

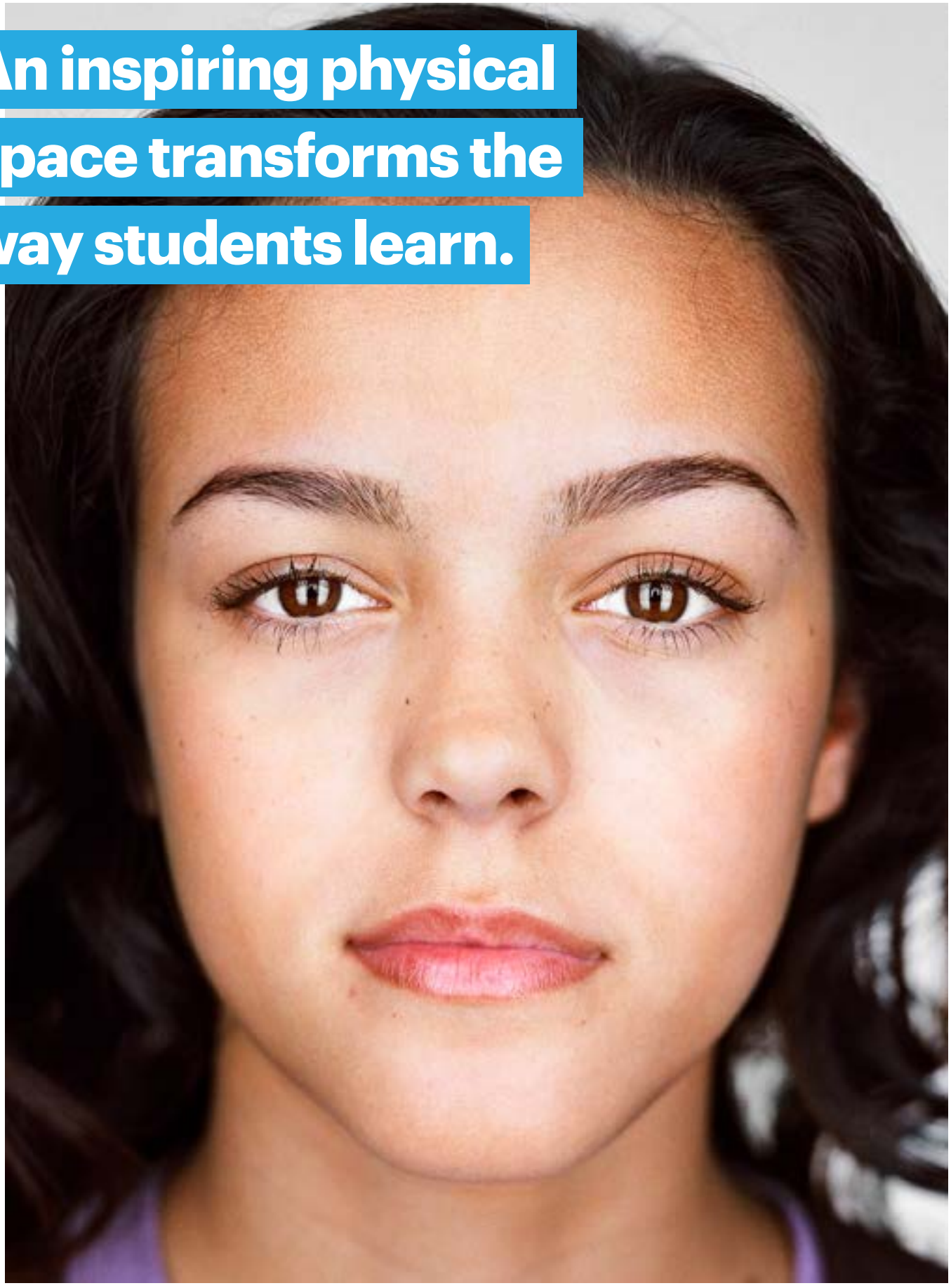
The National Center on Time & Learning offers tools and resources on how to expand learning time and use time more effectively in schools and classrooms.

Time for Deeper Learning

See how five innovative high schools have successfully experimented with their schedules to make time for deeper learning.

FACT 29

An inspiring physical space transforms the way students learn.



Let's challenge the notion that high school facilities need to have a certain look and feel.

Today's young people will enter a workplace that looks and feels totally different from the recent past. Open offices, virtual meeting rooms, and co-working spaces are all recent innovations—and we can't even begin to imagine what kind of creative work environments future generations will inhabit.

We do know this: The workplace of the future will be more mobile and virtual and will make use of a much wider range of environments. Schools can prepare students to navigate these environments by thinking more creatively about their own use of space, whether that means allowing students to spend class time outside the school building or retrofitting existing facilities to foster a different kind of learning.

How can school facilities be designed such that students aren't locked into an outdated paradigm? If a complete architectural overhaul is not realistic, are there ways educators can make existing spaces more inspiring, collaborative, and student-centered? Can outdoor spaces, corporate campuses, universities, museums, and community centers be part of the learning experience?

Think About →

Have you seen unconventional spaces where people seem to be working particularly well and productively? Are people working individually, in pairs, in clusters, in larger groups? What makes those spaces conducive to work and learning? What makes them inspiring?

Here's a roundup of alternatives to the traditional classroom, compiled by education reformer, Bob Pearlman.

+ **Columbus Signature Academy** in Columbus, IN, features double-sized integrated learning studios, a presentation room, multipurpose common areas, breakout areas, and specialty labs.
+ **New Tech High** in Coppell, TX, features dual subject matter learning environments, large multigroup collaboration zones, project planning rooms, and an open-access digital media library.
+ **The Metropolitan Regional Career and Technical Center** in Providence, RI, features advisory and project rooms, common areas, and fabrication labs.
+ **High Tech High** in San Diego, CA, features flexible classrooms clustered around a common-area studio, small and large conference rooms, and specialty labs for biotech, engineering, art, music, and digital arts.

How States Fund School Facilities

This technical report from the Center for Cities and Schools at University of California, Berkeley lists the funding approach for each state.

Expeditionary Learning Schools in Action

Ninth-graders at a new Expeditionary Learning School went outside to study the water quality at a local pond and made recommendations. The results: strong science test scores—and a new swimming spot!

Makerspaces

Makerspaces, jam sessions, and pickup sports sessions all take advantage of physical tools to teach teamwork, collaborative thinking, and playfulness. Makerspace provides a toolkit for creating these spaces within high schools.

Kurani Design Firm

Kurani designs spaces for learning that are deeply in tune with the needs and goals of learners, from the Google Code Next lab to the Nelson Mandela School for Social Justice.

FACT 30

Technology is a means, not an end, to great school design.

How can technology work in service of making and deepening real connections?

In the past decade, we've seen schools take great strides forward in harnessing technology to encourage and empower student learning. A vast array of tech tools is now available to expand the capacity and efficiency of educators, personalize student learning, increase access to enriching experiences and information, and help bridge the gap between a student's life at school and the learning that happens at home or outside school hours. These changes are important, not just for enhancing student learning today, but also for preparing students to thrive in the technologically advanced environments of tomorrow.

Roger Schank, founder of the Institute for the Learning Sciences at Northwestern University, identifies three key ways students work today: on the computer, in dialogue with others, and by making things. Technology can play a crucial role in all three by making learning more fun, rigorous, and multidimensional. Laptops enable focused individual work in any physical environment; social media, online discussions, and shared file access are amazing tools for collaborating and communicating; and software-driven 3D printers and laser cutters can generate instant prototypes of just about anything. These are just a few examples—the possibilities are limitless. Leveraging technology creatively involves:

+ Thinking strategically about how and why to use technology
+ Seeking out expertise about what tech can and can't do for education
+ Exploring the full range of technological solutions available
+ Integrating technology seamlessly into the human process of teaching and learning

Think About →

Where can technology truly empower students and teachers? How can a learning management system (LMS) enhance student learning and improve the way educators manage assignments, share research materials, create digital portfolios, and communicate with families?

Students Prepared for the Future

According to the International Society for Technology in Education, it's essential that students gain the complex knowledge and skills required to thrive in a "constantly evolving technological landscape." ISTE's Standards for Students describe a prepared learner as someone who embodies these "seven ways" of being future-ready.

+ Empowered Learner
+ Digital Citizen
+ Knowledge Constructor
+ Innovation Designer
+ Computational Thinker
+ Creative Communicator
+ Global Collaborator

Platform Revolution

Getting Smart describes major trends in the development of national learning platforms, arguing that they may be the key to truly personalized, adaptive online learning.

Tech Guidance for Educators and Families

To help make smart choices about students' media use, Common Sense Education offers top-notch resources on digital citizenship, teaching, and privacy issues.

Reengineering Information Technology

Students today need to attain real competency and understanding. How can technology help? This Competency Works brief integrates IT with new methods of learning for the 21st-century learner.

Power My Learning

The New York Times Opinionator blog profiles the PowerMyLearning platform, a free, curated online learning resource for students, educators, and parents.

Time spent meaningfully + creative space design + wise use of technology = endless learning possibilities

Time, space, and technology can embody and amplify every school's mission and culture.

We need to rethink the basics of school design—the when, where, and how of learning. Ask yourself and others how technology is enabling shifts in the workforce and the way we process information, and apply these perspectives to how schools can provide transformative learning experiences.

GET INSPIRED

Why Redesign Time?

This video from the National Center on Time and Learning explains why it makes sense to redesign the school day and year for today's students.

How to Make Your Space More Collaborative

The Stanford d.school shares 11 tips on how to make a work space more collaborative.

The Yellow Bus

Over 50 percent of K–12 students take a bus to school each day. How can transportation innovations transform how our students get to school and back?

More Time to Learn

This infographic from ExpandED shows a different type of school day.

School Design in Finland

Get inspired by how an architecture firm in Finland is tackling school design with elegance and beauty.

Cortex at Brooklyn Lab

See how a math teacher uses Cortex, a digital platform by InnovateEDU, to help students master ratio thinking at this XQ Super School.

GET INSPIRED

Gaming and Social-Emotional Learning

Three educators share their thoughts on how Minecraft and other games may actually boost SEL for students.

Green Schools in Canada

What do green schools look like? Read more about the greenest schools in Canada here.

The Science of Teenage Sleep

Find out "Why Teenagers Really Do Need an Extra Hour in Bed," from *New Scientist*.

Fab Foundation

Learn what it takes to start a FabLab makerspace, including sample layouts, hardware and software needs, and the right "fab people."

Making Makers at MIT

Hands-on learning "totally changes the way you learn, and it transforms the way you think," says MIT mechanical engineering professor Martin Culpepper, who ensures students across the institution have opportunities to test their ideas by doing.

Six Steps for Implementing an LMS

Implementing a learning management system is both a technological and human challenge. Here are some tips.

LET'S REIMAGINE AND REDESIGN THE BUILDING BLOCKS OF LEARNING