



The Transformation to Digital: What It Looks Like, Why It Works, Why It's Time

Presented to the board members at AASB whose students will work, live, and achieve in the future.
by



twitter:
@halldavidson
tinyurl.com/HDHandouts

Hall Davidson
Senior Director, Global Learning Initiatives, Discovery Education
June 16, 2018



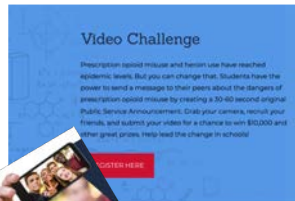
<https://www.operationprevention.com>



Classroom Resources

Grounded in science, health, social studies and ELA standards, education resources seamlessly integrate into classroom instruction and out-of-school learning environments.

EXPLORE RESOURCES



Video Challenge

Prescription opioid misuse and heroin use have reached epidemic levels. But you can change that. Students have the power to send a message to their peers about the dangers of prescription opioid misuse by creating a 30-60 second original Public Service Announcement. Create your camera, record your friends, and submit your video for a chance to win \$10,000 and other great prizes. Help lead the change in schools!

REGISTER HERE



SELF-PACED MODULE

What is an Opioid
and how does it affect your health?

The Science of Addiction

The Stories of Teens

Meet teens who are struggling with prescription opioid misuse and heroin use and learn the science behind their powerful stories in this self-paced, standards-aligned e-learning experience, The Science of Addiction: The Stories of Teens.

LAUNCH MODULE

EDUCATOR GUIDE

About the Program

The DEA and Discovery Education have joined forces to combat a growing epidemic of prescription opioid misuse and heroin use nationwide. Operation Prevention's mission is to educate students about the true impacts of opioids and kick-start lifesaving conversations in the home and classroom.

Since its launch, Operation Prevention has reached over 2M students nationwide. No local sponsorship or corporate funding is necessary for you to get started today.

DEA and Discovery Education are grateful to the National Institute on Drug Abuse (NIDA) and the Substance and Abuse and Mental Health Services Administration's



Virtual Field Trip

Visit Huntington, West Virginia- a typical American community that has been greatly impacted by the opioid epidemic- to hear the powerful personal stories from the bravest teens and change makers in the city in this virtual field trip, now available on demand. Students will learn how opioids have affected their lives, how they are using their experiences to improve the city, and ways your students could make a positive impact on their own communities.

You can also view The Science Behind Addiction Virtual Field Trip on demand.



Image: Discovery Education

The Broader Responsibility

We teach students.

We prepare kids to achieve on tests and for their life in the world after school: Work, life, digital democracy.

EDUCATION WEEK

By Sarah D. Sparks
August 28, 2017

“What Do Americans Think of K-12 Schools?”

Phi Delta Kappa International's annual poll of Americans' attitudes toward education
Aug. 30, 2017 (Ed Week)

Should public high schools offer career-related courses if it means students would spend less time in academic courses?

National totals, 2017

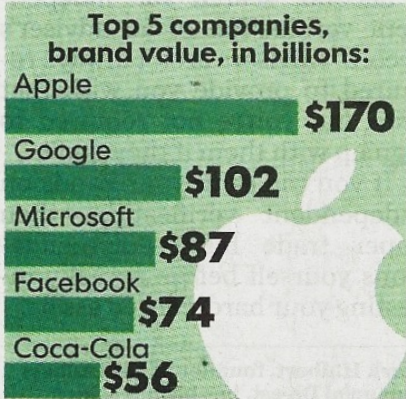


● Should offer ● Should not offer

<http://www.edweek.org/ew/articles/2017/08/28/more-americans-give-top-grades-to-public.html?h=1170844639>

USA SNAPSHOTS®

Most valuable brands of 2017



SOURCE Forbes' Seventh Annual World's Most Valuable Brands List

AI

USA SNAPSHOTS®

Most valuable brands of 2017

Top 5 companies, brand value, in billions:

Apple	\$170
Google	\$102
Microsoft	\$87
Facebook	\$74
Coca-Cola	\$56

SOURCE Forbes' Seventh Annual World's Most Valuable Brands List


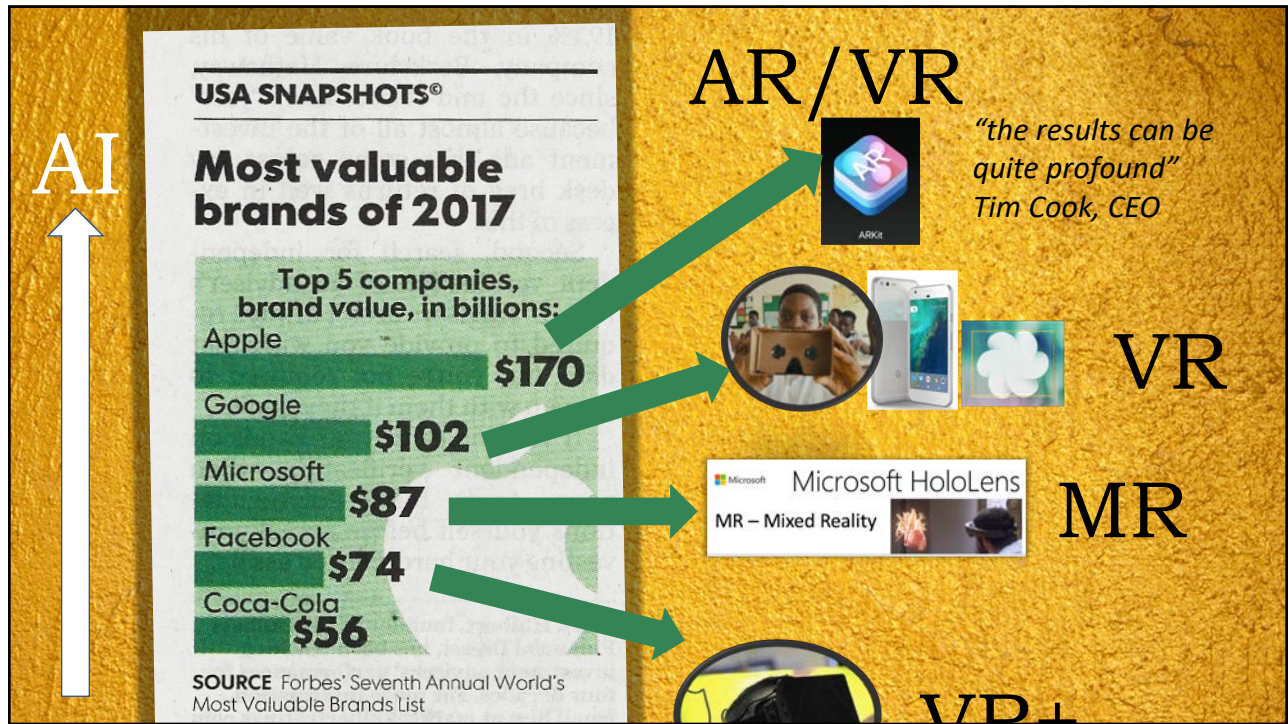
AR/VR

"the results can be quite profound"
Tim Cook, CEO

VR

MR

VR+



Michael Terrell uses augmented reality (AR) smartglasses to service equipment at a Coca-Cola plant in Cleveland, Tenn.

'This is a potential game-changer. We've only scratched the surface of how this technology can be used.'

CNN tech "It's a game-changer for training. Nothing can really replace real-world training, but virtual reality complements it in a way that engages our employees." *Laura Collings, UPS training and development manager*



Before hitting the streets in 10,000 lbs delivery trucks, new UPS drivers are testing out their skills in VR. by [Matt McFarland](#) @mattmcfarland August 15, 2017: 12:23 PM ET



Sputnik moment

AI



'AI will effect life as much or more as the last whole wave of technology.'

Sir Ken Robinson

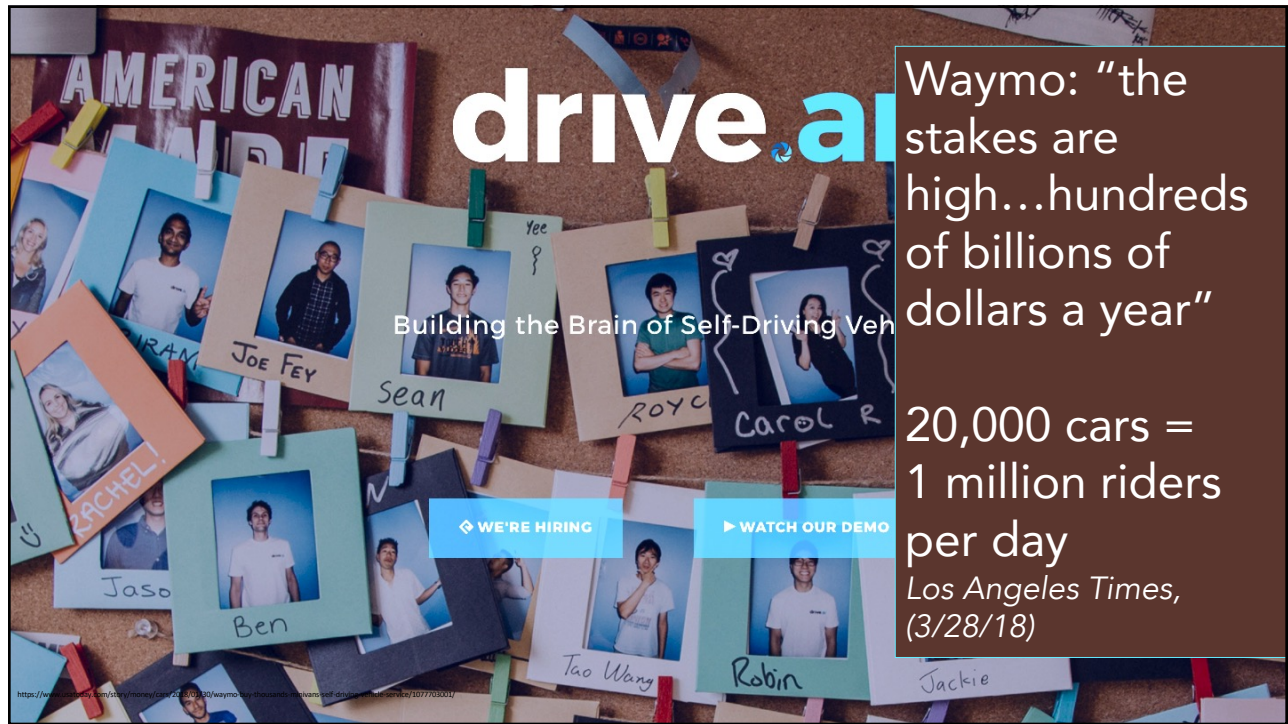
FETC, January, 2018



Year Focus China next generation AI development plan goals

2020	Big data intelligence, autonomous intelligence systems, cross-medium intelligence, swarm intelligence, hybrid enhanced intelligence, AI foundational theories
2025	Intelligent manufacturing, intelligent medicine, intelligent city, intelligent agriculture, national defense construction, AI laws and regulations, AI security assessment and control capabilities
2030	Social governance, national defense construction, industrial value chain





drive.ai

Building the Brain of Self-Driving Vehicles

Waymo: "the stakes are high...hundreds of billions of dollars a year"

20,000 cars = 1 million riders per day

Los Angeles Times, (3/28/18)

WE'RE HIRING

WATCH OUR DEMO

AMERICAN

RACHEL

Jaso

Ben

Joe Fey

Sean

Yee

ROYC

Carol R

Tao Wang

Robin

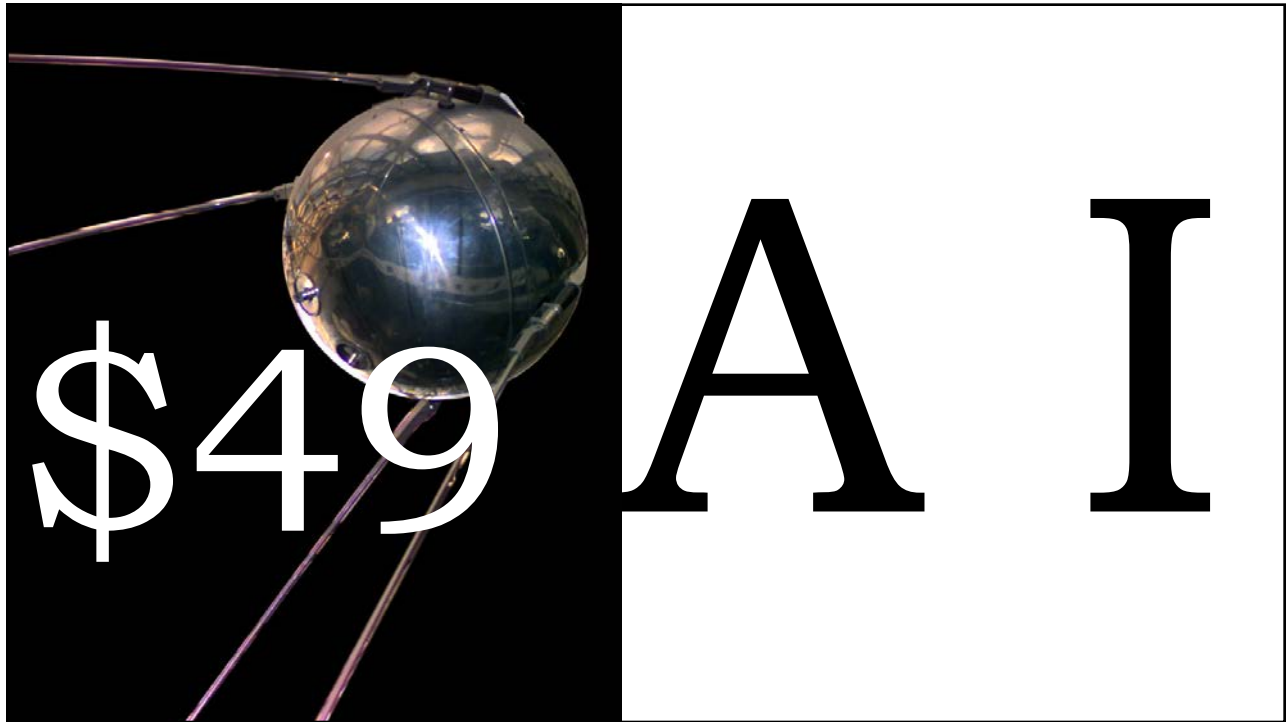
Jackie

<https://www.waymo.com/pressroom/2018/03/28/waymo-raises-its-stakes-in-self-driving-cars-to-20-billion>



TOYOTA RESEARCH INSTITUTE

<https://tinyurl.com/ToyotaVFT>



Students can code the Amazon Echo

Node JS
Java
C Sharp
Python

\$49

"Alexa, ask Teacher Thoughts to remind me why I'm a teacher."

Teacher Thoughts
★★★★★ 1

"Alexa, ask AASB for Megan Robinson's college fight song"

Amazon Echo

People have coded 25,000 skills

AWS Government, Education, & Nonprofits Blog

Prince George's County Summer Internship Program: Creating Alexa Apps for Students



They coded for challenges faced by some public school students,

- reading impairments/ language barriers
- fundamental math skills
- guide students through all aspects of the college application process.

My DE

Search 30

Science Fair Central

Are you ready for science fair season? Find tons of resources for teachers, coordinators, students, and parents for your best STEAM event yet.

Learn More

K-12 service
179,420 assets

Hall Davidson
Technology Support at DEN

SOCIAL STUDIES TECHBOOK See what's new

Maximize your experience!
2 more to go!

- ✓ Create a class
- Try a Strategy
- Build a board

Tools

Services

- SCIENCE TECHBOOK
- SOCIAL STUDIES TECHBOOK
- MATH TECHBOOK
- STEM CONNECT

See all services below

DEN Conversations

Ignite My Future: Friday Favorites from Your Commu...
By: Michael Bryant, 13 hours ago
Posted in: DEN Friends

You've heard it before, maybe with slight variations, that today's students need to be able to solve real world problems. Real world problems however, seldom c...

My DE Home Services Admin & Reporting

Activity Most Popular Content Conversations & Connections

Discovery Education posted an update

Discovery Educator Network Meet the DEN: Melissa Matthews

GLOBAL NEWS

The image shows a screenshot of the Science Fair Central website. The main header reads "Science Fair Central" and includes a search bar and a "Learn More" button. Below the header, there are sections for "Services" with buttons for "SCIENCE TECHBOOK", "MATH TECHBOOK", "SOCIAL STUDIES TECHBOOK", and "STEM CONNECTIONS". A "Watson" overlay is present in the bottom left, featuring a globe icon and the name "Watson". A text box on the right contains the following text:

“OK, teacher assistant: Find me a reading passage on the Civil War between Lexile 740L and 1010L and assign it to Benjamin Monjan.”

Break! STEAM question

What percent of the world's pianos are sold in China?

5% 15% 45% 60% 80% None (all are 3D printed at home)

Source: Steinway USA Today 3-28-18

Image: Discovery Education

Break! STEAM question

What percent of the world's pianos are sold in China?

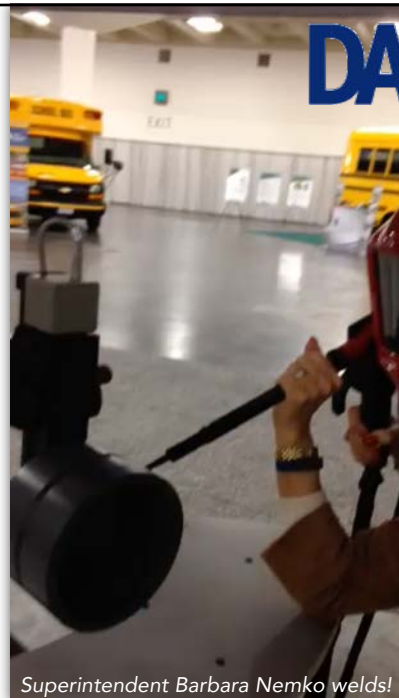
80%

Source: Steinway USA Today 3-28-18



Virtual reality offers real rewards in education

How cutting-edge VR technology brings K-12 career development to life [Jennifer Fink District Administration, June 2017](#)



DA District Administration

Familiarity and comfort with VR "is a marketable skill right out of school."

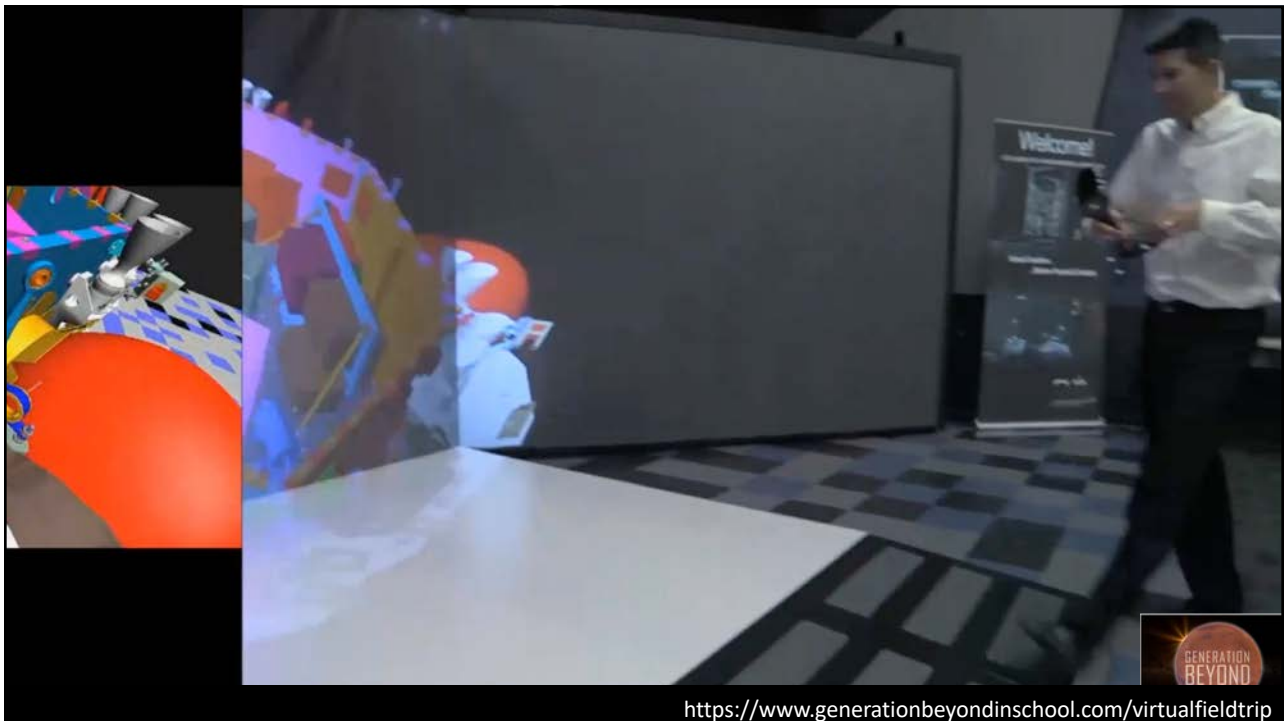
VR



TEACHER GUIDE /
COMPANION ACTIVITY



Virtual Reality is a computer-generated experience that can simulate physical presence in real or imagined environments.



<https://www.generationbeyondinschool.com/virtualfieldtrip>




Signs of Life

What are some signs of hope in the Sub-Saharan African economies?

One of the main challenges facing all Sub-Saharan African governments is how to develop their economies. Colonial systems set up practices that served the interests of foreign powers rather than Africans. Therefore, new governments—even those with much political freedom—could not simply adopt existing models. Instead, African governments tried a variety of methods to grow their economies. While some of these have been more successful than others, essentially all Sub-Saharan states may be considered developing countries, or countries whose economies are still growing and transitioning into economic stability.

After independence, Sub-Saharan governments used different methods to try to grow their economies. Kenya, for example, adopted a system that encouraged investors in other countries to contribute to the country's economy. This helped the nation develop the largest economy in East Africa; however, many of its people survive by engaging in **subsistence farming**, and about half the population lives in **poverty**. In contrast, other nations such as Ghana and Tanzania created economies in which the government ran industries and discouraged people from owning their own businesses. Even stricter government control grew in countries with more controlled economies, such as Mozambique, Zimbabwe, and Ethiopia. Some of these nations benefited from the support of other countries to develop their economies.


Economic Activity in Africa



The geographic and climate variation across Africa means that economic activity varies as well.

[View Image](#)

Coal Mining in Mozambique



The development of rich natural resources in Mozambique is limited by poor infrastructure and other regional factors.

Virtual Reality: Seeker: The West and Africa's Growing Middle Class

How is "middle class" life in Africa similar to life in the United States? How is it different? How do you think a growing "middle class" might change the

VR Learning Targets: US History (cont.)

First Semester US History Final - Summative Assessment -Google Docs/Maps

Directions Adapted Directions Visual Cues

DATA COLLECTION SAMPLES

- 9/17 - Introduced VR; Holly Charr, Darcy; Saw students more connected immediately
- 9/17 - Google Street View; went to community places; prepaid
- 10/17 - Choice of **Classroom**; VR goggles or taking **20** photos
- 11/17 - Google Street View (Phones in IT); CA Rise Garden, GA
- 12/17 - All students using VR; system beginning to make sense
- 1/17 - VR Cam Maps; Very high level of engagement
- 2/17 - VR Cam Maps; supports: skydiving, surfing, bungee
- 3/17 - VR Cam Maps; supports: skydiving, surfing, bungee

Interactive Activities for Teachers: Field Trips & Tours

<https://www.vedantu.com>

Tuesday, January 23, 2018!!!!

WE DID IT!




Virtual Reality: New Worlds within Reach at Cleburne ISD

December 6, 2017



Written by [Guest Blogger](#)

Discover how one dedicated teacher rolled out a virtual reality program in his classroom that soon led to a district-wide implementation.



Middle school science classroom using transformative digital techbook



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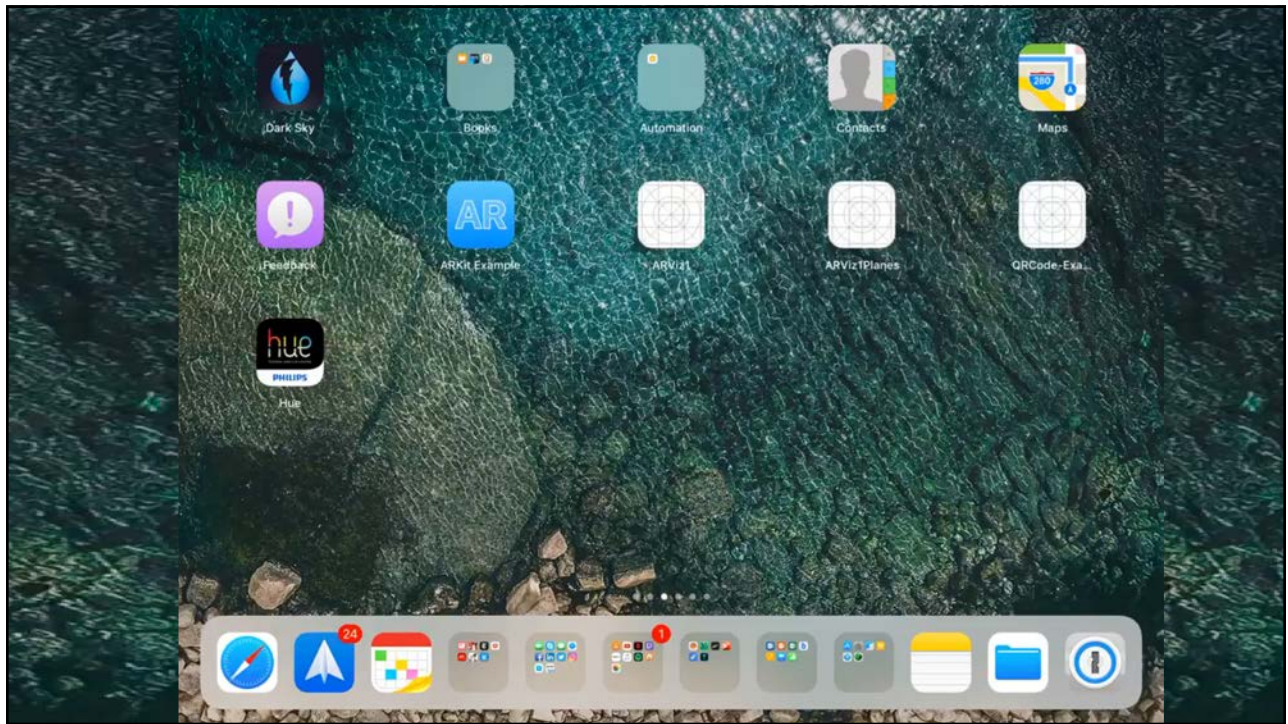
location based or trigger based



Augmented reality is the integration of digital information with the user's environment in real time.







Kiwi - Biggest egg in comparison to body size

Kiwi are not like other birds. In some ways they are more like mammals. Their feathers are like fur and they have long whiskers around their faces like a cat.

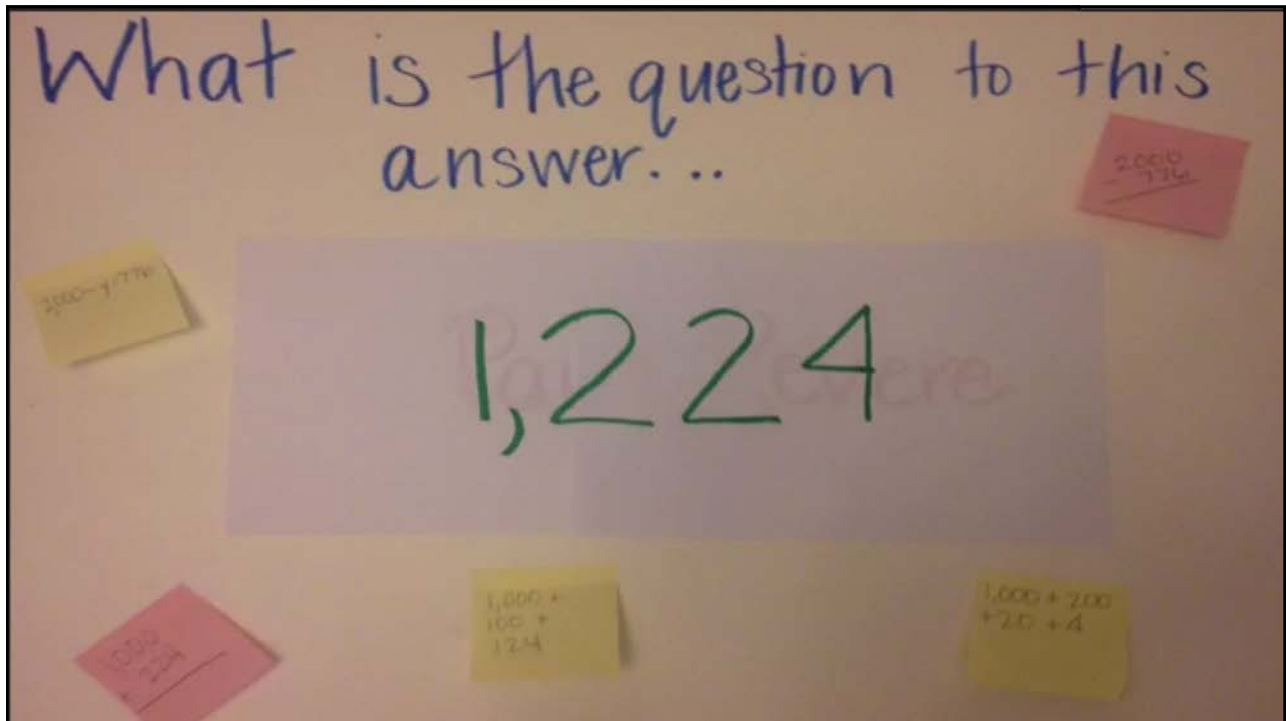
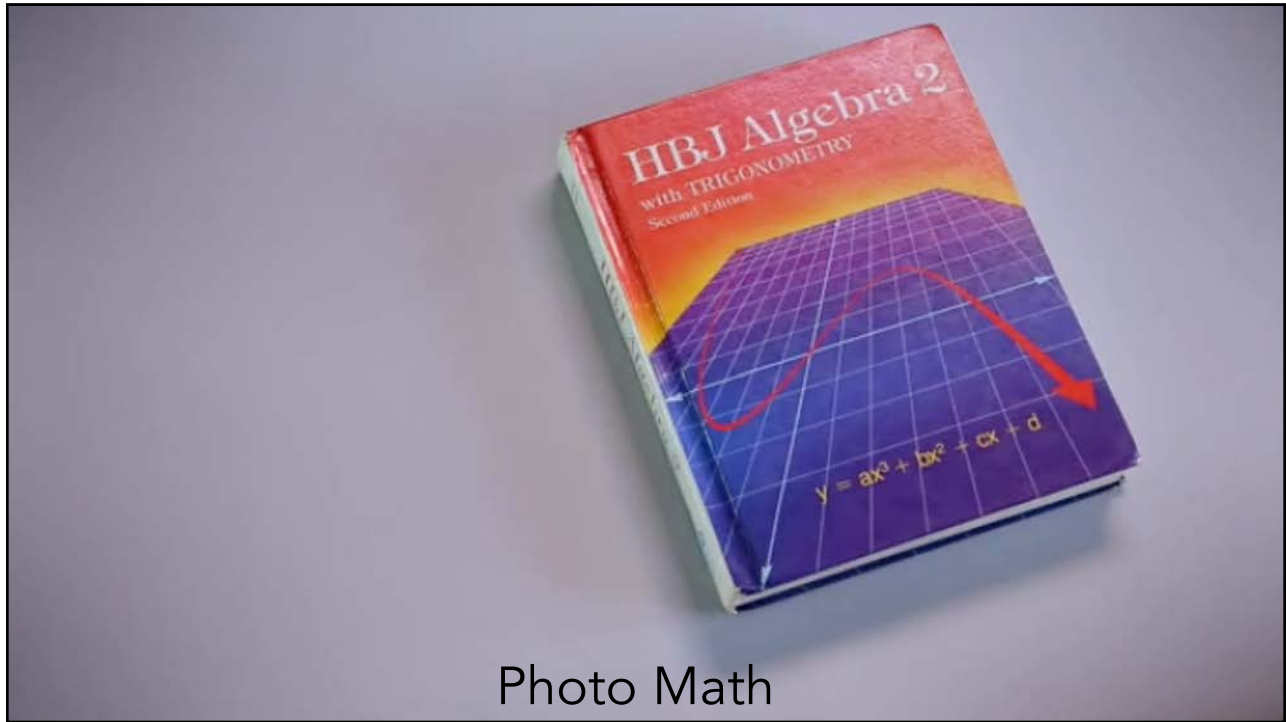
Kiwi come out at night to feed on worms and insects, which they sniff out using the nostrils at the end of their long sensitive beaks. All other birds have nostrils at the beginning of their beaks.

In proportion to their size, kiwi lay the largest eggs of any bird. The eggs weigh up to almost a kilogram – that means four eggs would weigh as much as the mother kiwi. In comparison, ostrich eggs are twice as big as kiwi eggs, but it would take 60 ostrich eggs to weigh as much as a female ostrich.



<https://i.ytimg.com/vi/gTmYlphW3s/maxresdefault.jpg>

<http://www.quivervision.com/>



Grades 6-8 Life Science - for use with NGSS (NEW)

Course View | Table of Contents

Expand All | Collapse All

FROM CELLS TO ORGAN SYSTEMS	EVOLUTION AND THE DIVERSITY OF LIFE	ECOLOGY
UNIT: Cells	UNIT: Evolution	UNIT: Ecosystems
UNIT: Genetic Traits and Reproduction	UNIT: Diversity of Life	UNIT: Populations and Communities
UNIT: Human Systems		UNIT: Environmental Issues
		UNIT: Engineering to Solve Problems View Unit >

ISTE Tech Panel

TV Anchor

Actual kid.

"Would you say using the technology has improved your reading today [in textbooks]?"

"Those tools are really helpful. And they're great when you're a kid who... normally reading a book would take me months. Now I can be on the same chapter and go to class and say 'Hey, I read the book, too. But I didn't read the same way you read.'"

WORLD GEOGRAPHY AND CULTURES

WHAT'S NEW? STANDARDS GLOBAL NEWS TECHBOOK ATLAS REFERENCE

SEARCH

VISUAL OVERVIEW TABLE OF CONTENTS SWITCH COURSE

UNIT 1: INTRODUCTION TO GEOGRAPHY

CHAPTER 1 Visualizing the World

List Options

The student self-selects.

The World in Spatial Terms: Main Idea Web
Complete the Main Idea Web as you read pages 1–4.

For example, when studying desertification, a geographer would want to know where desertification occurs and what those places have in common. In addition, a geographer would ask questions to help determine when it started, what changed before it started, and what affect have humans had on the change?

The World in Spatial Terms: Main Idea Web
Complete the Main Idea Web as you read pages 1–4.

For example, a geographer might study why some dry grassy lands turn into deserts. A geographer would want to know where desertification happens. He or she would want to know what those places have in common. A geographer would ask questions to help find the answers. When did it start, what changed before it started, and what affect have humans had on the change? Geographers also would want to explore the effects of dry

Mathematics

Visual Overview
Table of Contents
Standards

UNIT 1: Ratios

3:1

UNIT 2: Division, Factors, and Multiples

UNIT 3: Operations with Fractions and Decimals

$\frac{1}{2} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$

UNIT 4: Unit Rates and Percents

Kilometers	60	60
Hours	1	1
60 kph		

UNIT 5: Rational Numbers

UNIT 6: Coordinate Plane

UNIT 7: Algebraic Expressions

$H = x + 7$

UNIT 8: Equations and Inequalities

$b > 1.2$ $b < 1.8$

MATH TECHBOOK

Search

33

My Dashboard
Glossary
Math Tools

SWITCH COURSE ▾

GRADE 7

Grade 7 Math (NEW)

Visual Overview
Table of Contents
Standards

$V = l \times w \times h$

UNIT 1: Signed Numbers

$-3 \cdot (-5) = 15$

UNIT 2: The Rational Number System

$\frac{3}{4} + \frac{3}{4} = \frac{3}{2}$

UNIT 3: Ratios and Proportions

UNIT 4: Proportional Reasoning and Scale

UNIT 5: Equivalent Expressions

UNIT 6: Equations and Inequalities

$12 \leq x < 14$

UNIT 7: Populations and Samples

UNIT 8: Probability of Random Events

It's been more than ten years. There's data.

Anson Highlights 2008-2012

- 11% to 97% Middle School 7th grade scoring a 3 or 4 on Algebra I End of Course
- 32% of 3 or 4 on Algebra I End of Course
- 27% of 3 or 4 on Algebra I End of Course
- Grade 5

Effective Digital Learning

Charlotte-Mecklenburg Schools

Science Proficient

Grade 5

Achievement in Collier County, FL

Case Study: Collier County

During the 2011-2012 school year, 88% of students in Collier County scored at the proficient level on the state science test.

Pre-school in Calistoga

Napa Valley

Mooreville, NC

Getting Students Across the Line!

The Results

"During the four weeks of instruction, the reading comprehension of the Calistoga preschoolers increased from **58.5 percent to 76.4 percent.**"
Eugene Narciso, COO of Footsteps 2 Brilliance,

SCOTTSDALE UNIFIED SCHOOL DISTRICT, AZ

After using Science Techbook for two years, middle school students in this district showed marked improvement.

- 11 percentage-point increase on state tests for 7th grade students (2015).

COLLIER COUNTY PUBLIC SCHOOLS, FL

Science Techbook helps bridge the language and equity gap.

- 5th grade EL students using Science Techbook scored 14 points higher on state tests than their non-Techbook peers (2012).
- 17-point increase in 8th grade scores on state tests (2012).
- 28 percent increase in Biology End of Course proficiency (2014).

ASHEBORO CITY SCHOOLS, NC

Three years after implementing Science Techbook, achievement scores for elementary students:

- 42 percentage-point increase on state tests for 5th grade students (2015).

ROWAN-SALISBURY SCHOOLS, NC

Two years after this district embarked on a strategic plan incorporating Science Techbook, student test scores increased.

- 71 percent of schools using Techbook raised their science scores on state tests (2015).
- 91 percent of schools scored proficient or better on state tests (2015).

OAK RIDGE SCHOOLS, TN

In this STEM powered district, Science Techbook helps elementary school students achieve at higher levels.

- Number of 4th grade students scoring proficient rose 8 percentage points higher for those using Science Techbook (2015).

High School Graduation Rates

Mooreville, NC

Every Child, Every Day!

High School Graduation Rates

88%

88%

88%

88%

Summary of Effectiveness by District - DIBELS Next

District: Napa Valley LSD

School: All Schools

Date: 2012-2013

Step: Middle of Kindergarten to End of Kindergarten

Need for Support: Recommended Goals

Highlights

- "On the PPVT – the EL students out performed the Post tests"
- "100% of the students scored at age 5.0"
- "88% [of students] performed at age 6.0"
- "ELs went from 43% readiness pre-treatment to 59% readiness post-treatment"
- "Non-ELs went from 59% readiness to 71% readiness post-treatment"
- "On the EVT – Students expressive vocabulary increased by 250%"
- "...pre-post scores were statistically significant with a probability of > .001"

ROCK HILL SCHOOLS




Techbook is improving student readiness for postsecondary education among 4th grade students, who have shown three years of growth using Science Techbook.

- 4th grade students taught with Techbook outperformed their peers on state tests (2013-2015).
- Greater gains were made using Techbook by students impacted by poverty, students who received special education services, and female students (2015).
- 4th, 6th, and 7th grade students taught with Techbook outperformed their peers on state tests (2015).

6th Grade Students


7th grade students with Techbook outperformed peers on 2015 state tests by 14 scale score points.

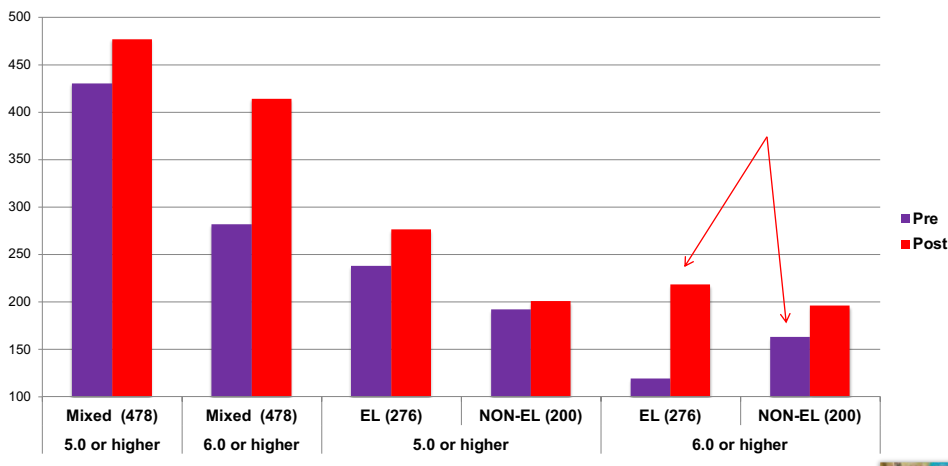
- Techbook helped narrow the achievement gap: African American students and students impacted by poverty using Techbook scored higher on 2015 state tests than their peers.

Pre-Post

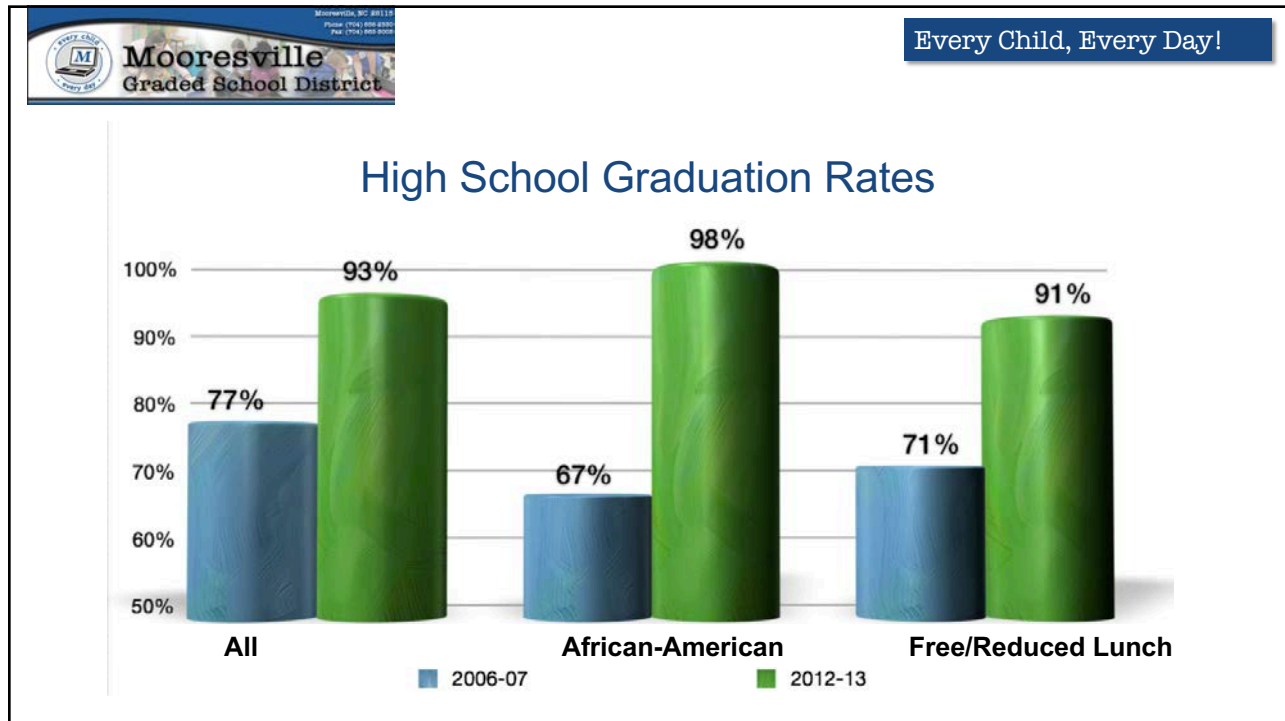
- 79% of EL (English Learner) Students at age 6.0+
- 98% of Non-EL students @ age 6.0 or higher





Group	Age	Pre Score	Post Score
Mixed	5.0 or higher	430	475
Mixed	6.0 or higher	280	415
EL	5.0 or higher	240	275
NON-EL	5.0 or higher	190	200
EL	6.0 or higher	115	220
NON-EL	6.0 or higher	165	195

Increase Receptive Language: PPVT Pre-K student numbers:



ASHEBORO CITY SCHOOLS, NC
 Three years after implementing Science Techbook, student achievement soars for elementary school students.

- 42 percentage-point increase in science scores for 5th grade students (2016).

SCOTTSDALE UNIFIED SCHOOL DISTRICT, AZ
 After two years, middle school science scores marked improvement.

- 15 percentage-point increase on state tests for 7th grade students.

ROWAN-SALISBURY COUNTY SCHOOLS, NC
 Two years after this district began its plan incorporating Science Techbook, science scores increased.

- 71 percent of schools using Science Techbook saw an increase in science scores on state tests (2015).
- 91 percent of schools scored higher on state tests (2015).

OAK RIDGE SCHOOLS, TN
 In this STEM-powered district, Science Techbook helps elementary school students achieve at higher levels.

- Number of 4th grade students scoring proficient was 8 percentage points higher for those using Science Techbook (2015).

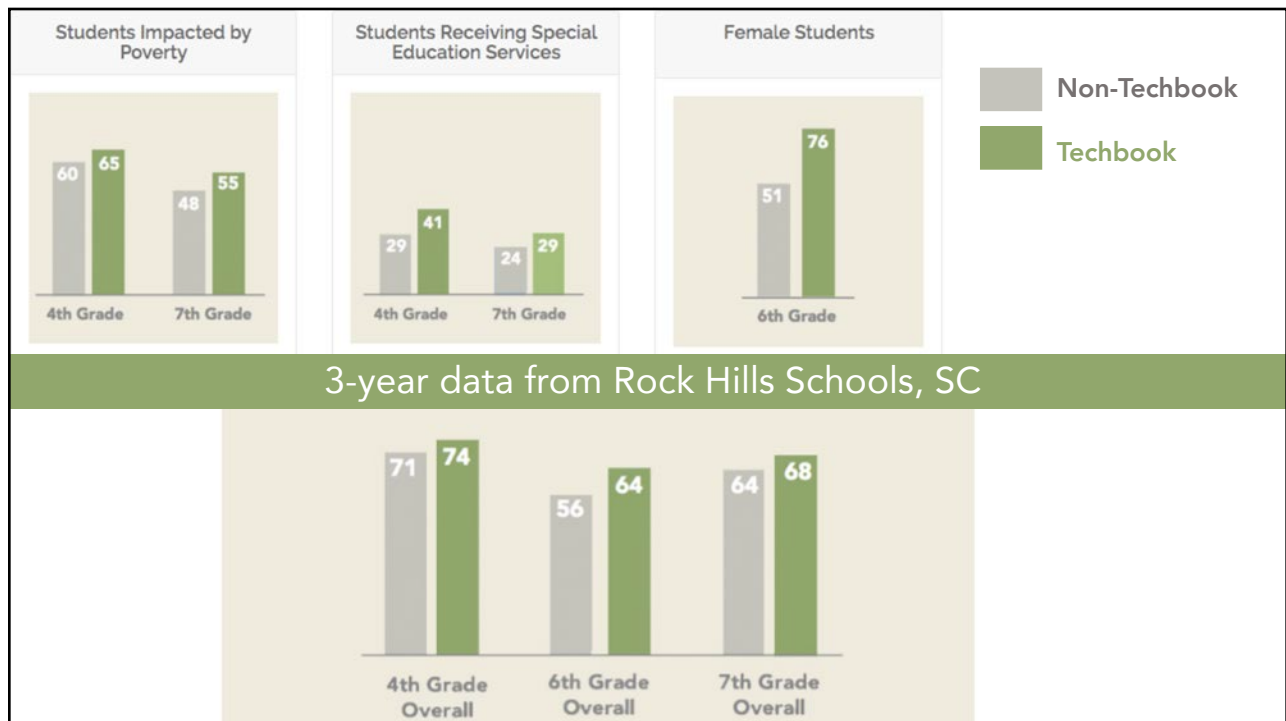
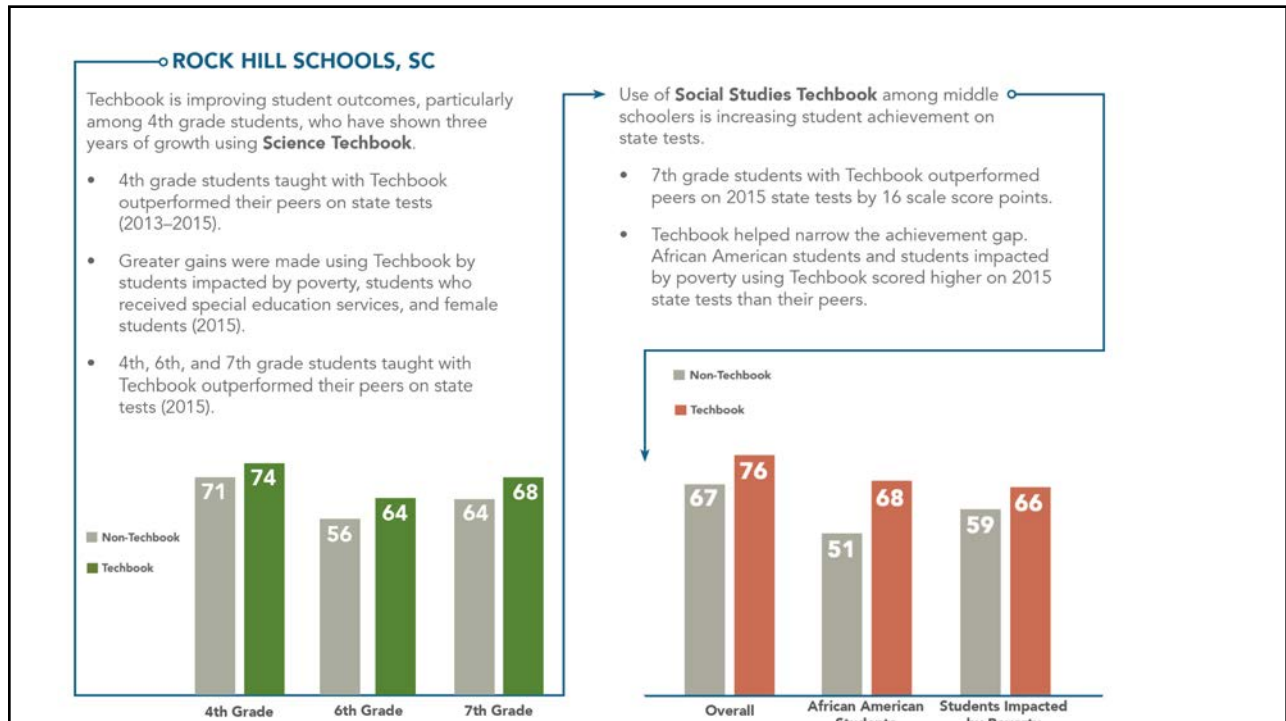
FLORIDA PUBLIC SCHOOLS, FL
 After two years, middle school science scores marked improvement.

- 15 percentage-point increase on state tests for 7th grade students.

20 percent increase in Biology End of Course proficiency (2014).

BARBARA REINERT
 PreK-12 Curriculum Science Specialist
 Scottsdale Unified School District

"We needed resources that were vetted, easy to use, and comprehensive. Science Techbook fit the bill. After two years, we have seen significant increases in science scores. Students using Science Techbook saw up to 11% gains in Arizona's Instrument to Measure Standards (AIMS)."



"We needed resources that were vetted, easy to use, and comprehensive. Science Techbook fit the bill. After two years, we have seen significant increases in science scores. Students using Science Techbook saw up to 11% gains in Arizona's Instrument to Measure Standards (AIMS)."




Barbara Reinert
PreK-12 Curriculum Science Specialist
Scottsdale Unified School District

Ann Clark
Charlotte-Mecklenburg Schools
Superintendent (2017)

There are other
unintended benefits of going
digital.

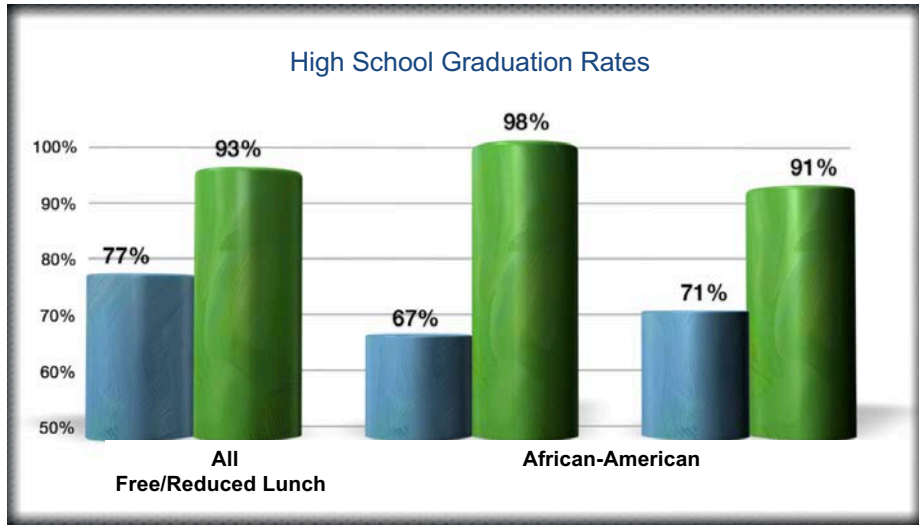




Mooreville
 Graded School District

500 N. Main Street
 Mooreville, NC 28115
 Phone: (704) 692-2320
 Fax: (704) 692-9000


- Mooreville, NC
 - Getting Students Across the Line!

Every Child, Every Day!



TEAMBCPS for every student, every school, every community
 

[OUR SCHOOLS](#)
[STUDENTS](#)
[PARENTS](#)
[COMMUNITY](#)
[CALENDAR](#)
[LEADERSHIP](#)
[OUR SYSTEM](#)




K-3 School


Hawthorne Elementary

43% migrant families

After first year of digital implementation office referrals were down **89%**.





Success Stories




Florida
Innovative
Principal of the
Year
Bill Floyd
2016


“The effect this has had on our campus is stunning...**50% fewer discipline referrals**; increases in AP participation, including non-traditional AP students, and **AP pass rate has increased**”

Bill Floyd









<http://v.fcim.org/medias/m1v0wzns3o>
 <http://www.fcil.org/successStories/innovativePrincipal.asp>



Implemented chrome books
After student use from February - May, 2015,
grades 5-12 kids surveyed:



- **60%** worked with a student in class they never talked to before.
- **New roles** for students as tech support, experts, **mitigated bullying**.
- **Distributed leadership** in the classroom

“We no longer have a divide between kids who love math and those who loathe it. With a digital math ‘techbook’, there’s a hook for every kid.”

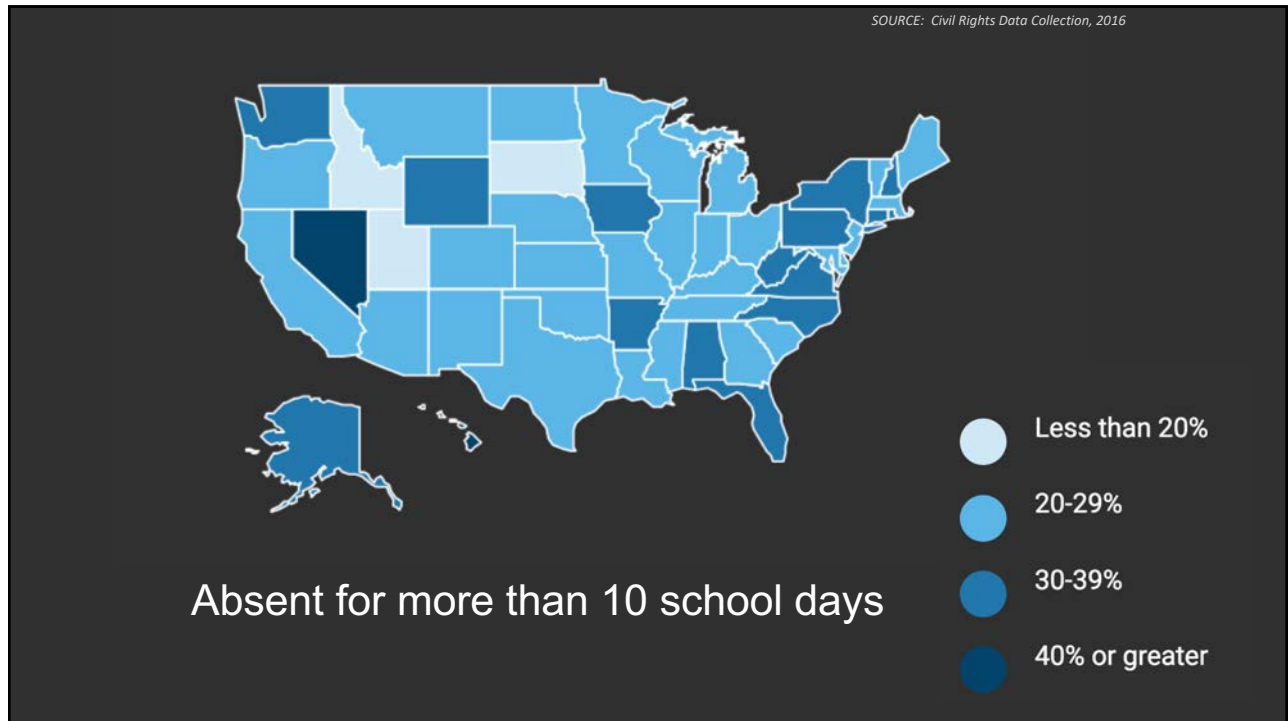
*Heather James
6th Grade Math Teacher
Richmond County Schools, NC*



They started their digital conversion in the 2013-2014 school year. By the next year, average **teacher attendance** rate went up 35%.



Teachers missed **3 less days** per year.

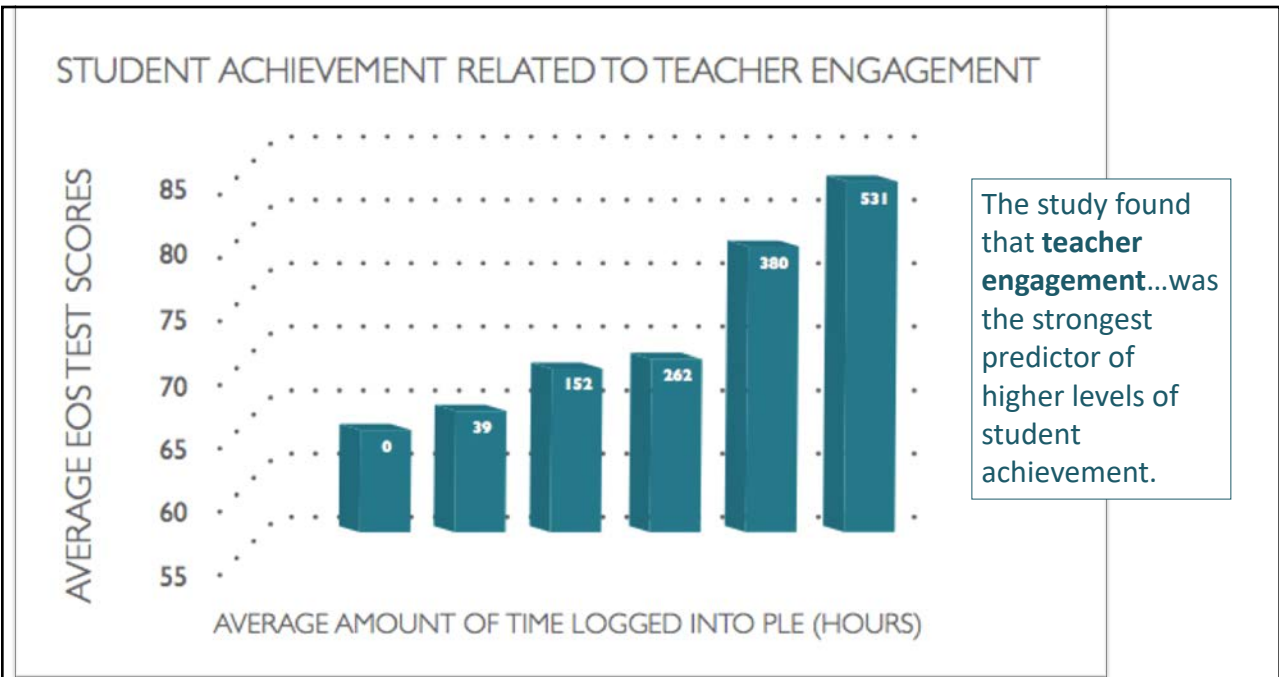
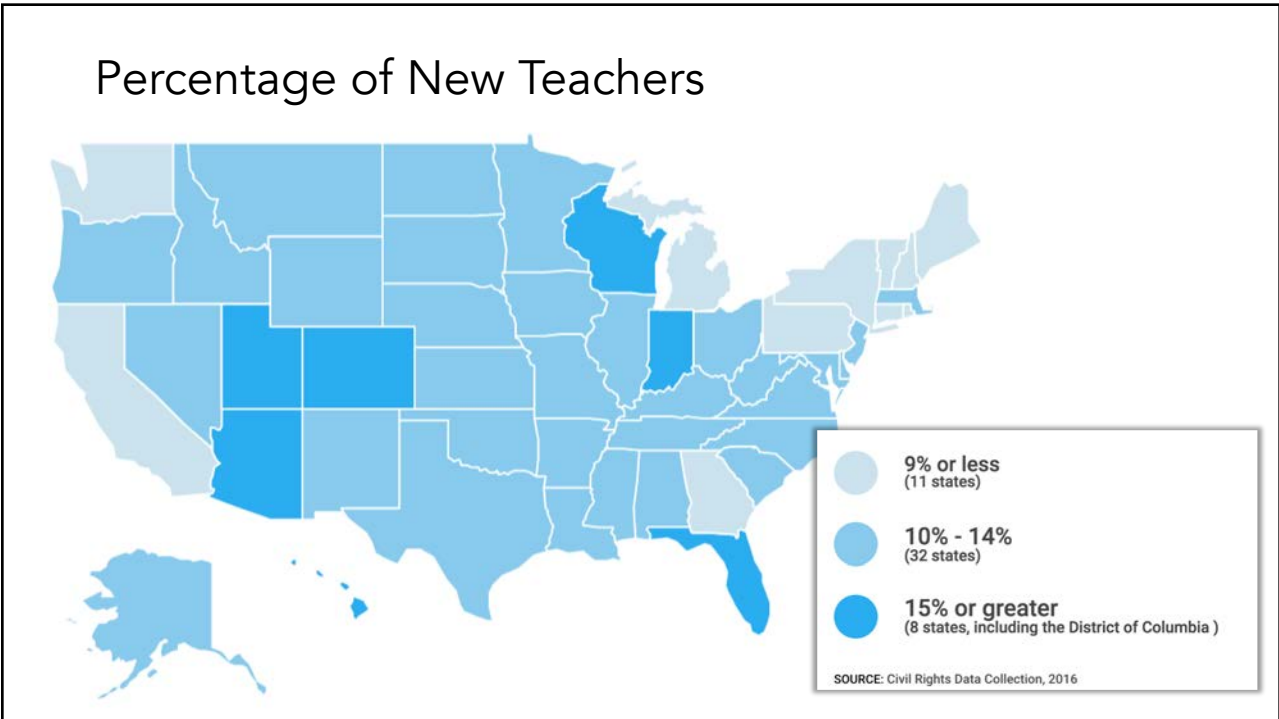


HICKMAN MILLS C-1 SCHOOL DISTRICT
Providing a Foundation for a Proudly Diverse and Historic Community

"Best teacher retention rate in the last 20 years."
Dr. Dennis Carpenter, Superintendent
Hickman-Mills, MO, School District

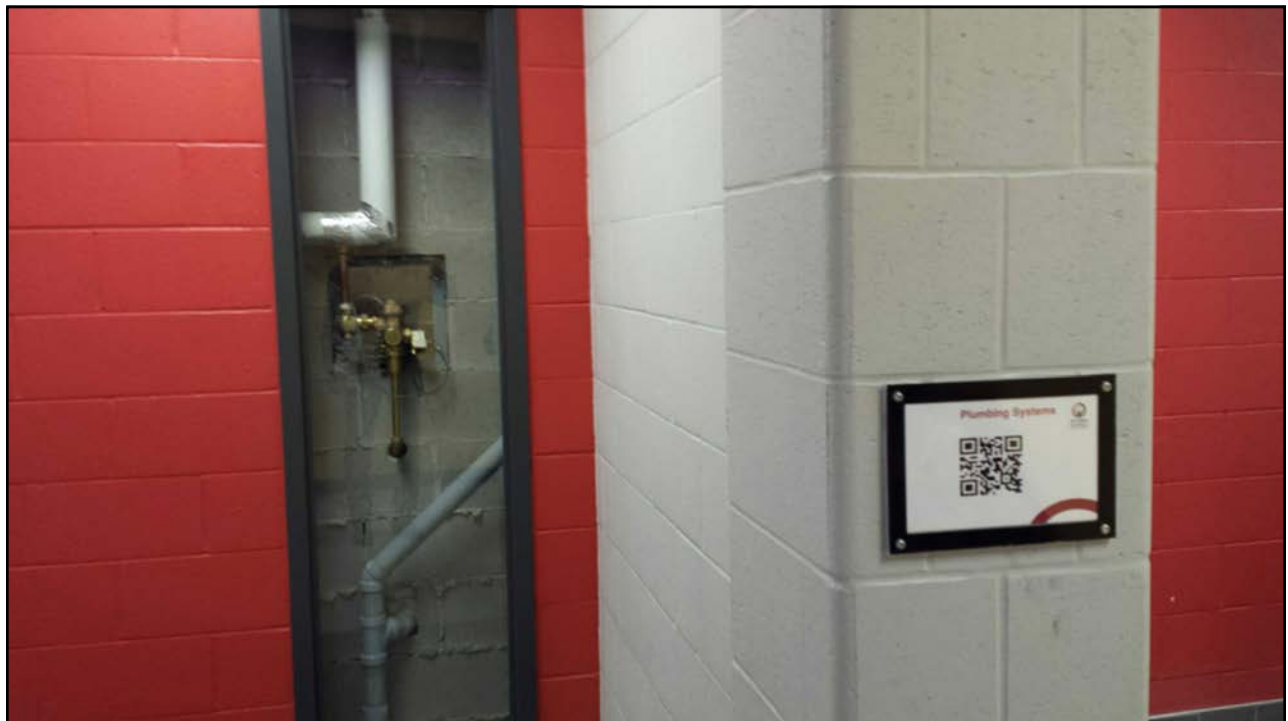
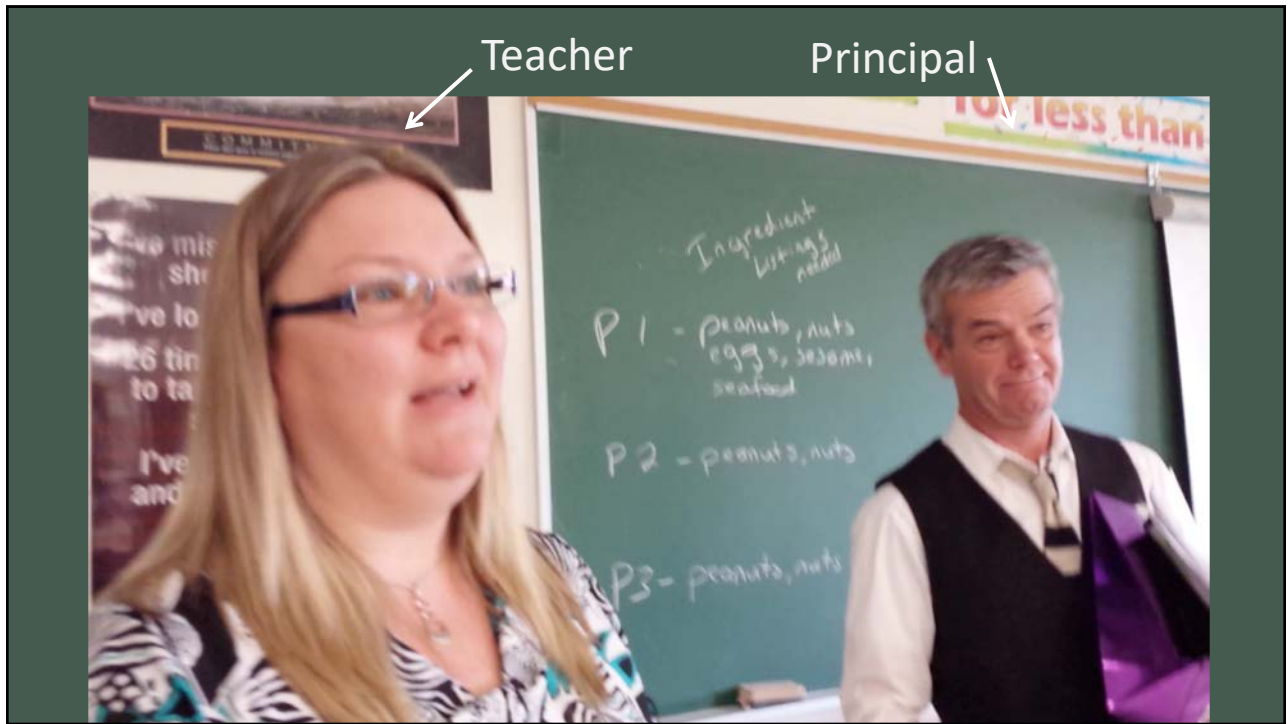
Old rate traditionally: 20-25%
Current rate: in single digits

7/20,2016



A Study of Best Practices in PLATO® Learning Online Solutions An analysis and interpretation of a Marzano Research Laboratory study March, 2012

The study examined perceptions of instructional practices and achievement data from 1,828 students and 141 teachers at 23 sites in 12 states (California, Florida, Iowa, Illinois, Indiana, Massachusetts, Maine, New Hampshire, New York, Ohio, Oklahoma, and Pennsylvania).



Celebrate Student Creativity
California Student Media Festival

<http://www.mediafestival.org/>

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CSMF CALIFORNIA STUDENT MEDIA FESTIVAL



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The Transformation to Digital: What It Looks Like, Why It Works, Why It's Time

*Presented to the board members at AASB whose students will work, live, and achieve in the future.
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June 16, 2018

