Technology Services

Second update on the implementation of the Ed Tech Plan.

A brief multi-media presentation (6 min)

A review of issues and concerns

A look at the future

Did You Know?

Adapted from an original presentation by Karl Fisch

Arapahoe High School,
Littleton Public Schools,
Littleton Colorado

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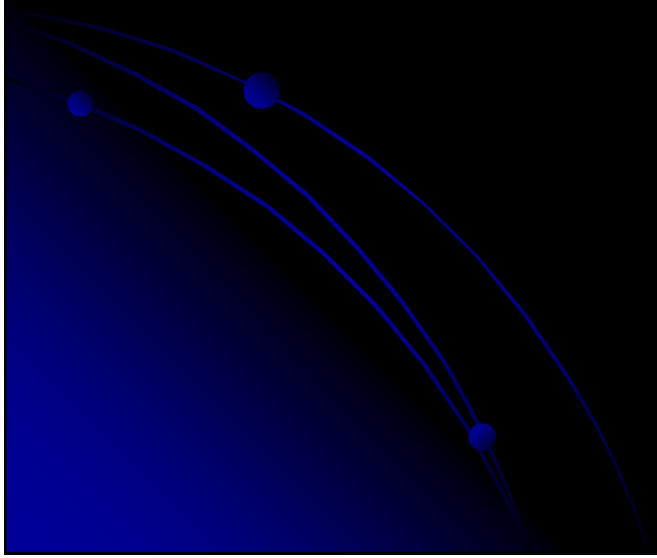
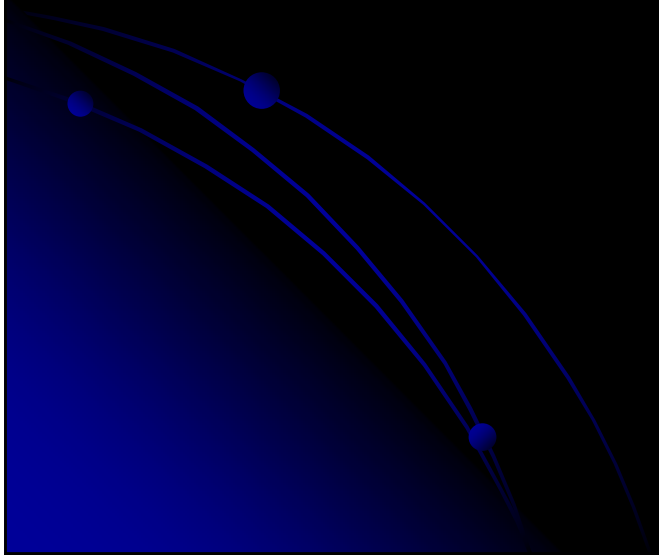
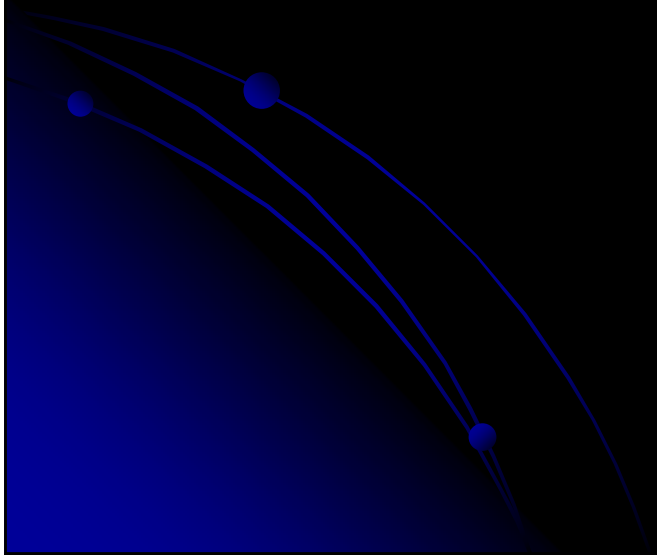
Did You Know . . .



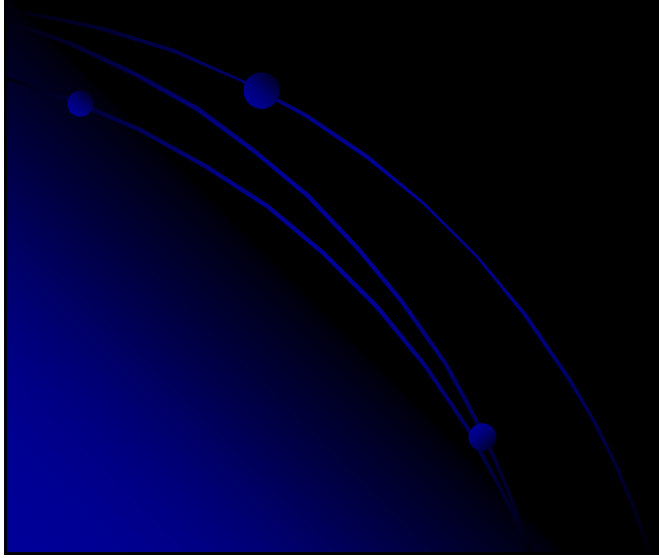
Sometimes size *does* matter.



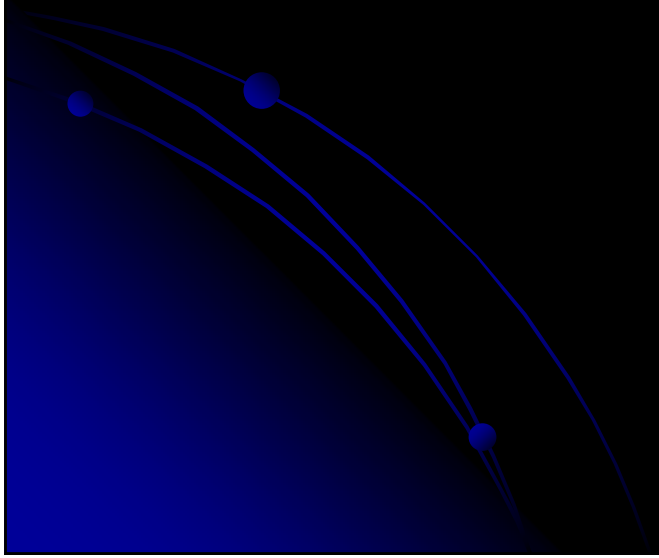
If you’re one in a million in China . . .



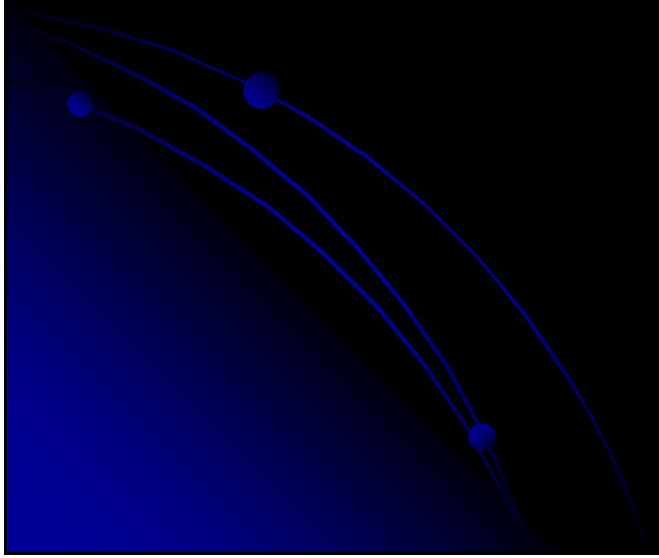
There are 1,300 people just like you.



In India, there are 1,100 people just like you.

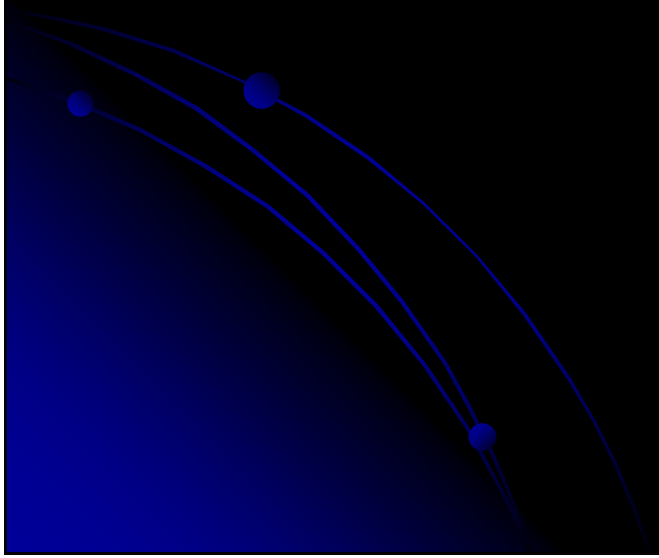


The 25% of the population in China with the highest IQ's . . .

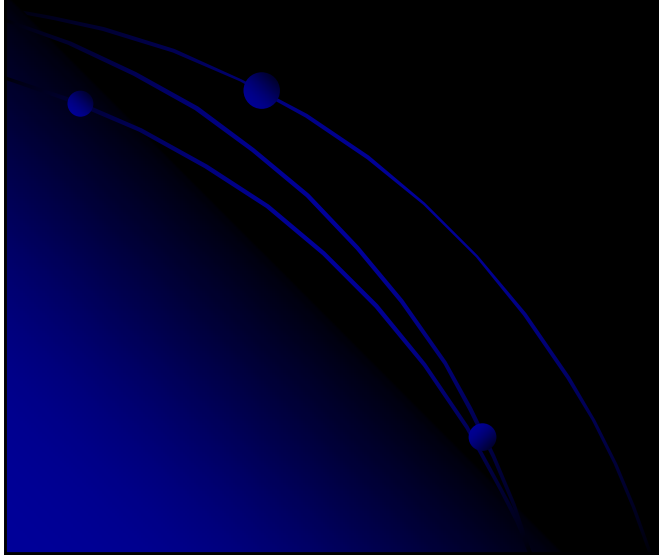


Is greater than the total population of North America.

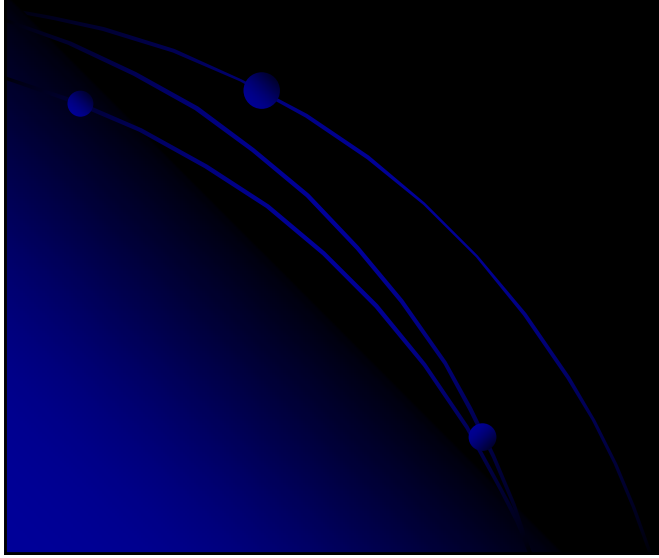
In India, it’s the top 28%.



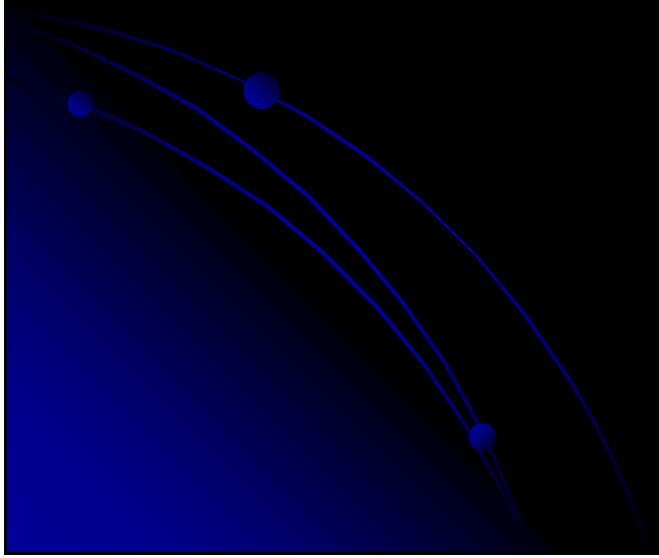
Translation for teachers:
They have more honors kids than we have kids.



Did you know . . .

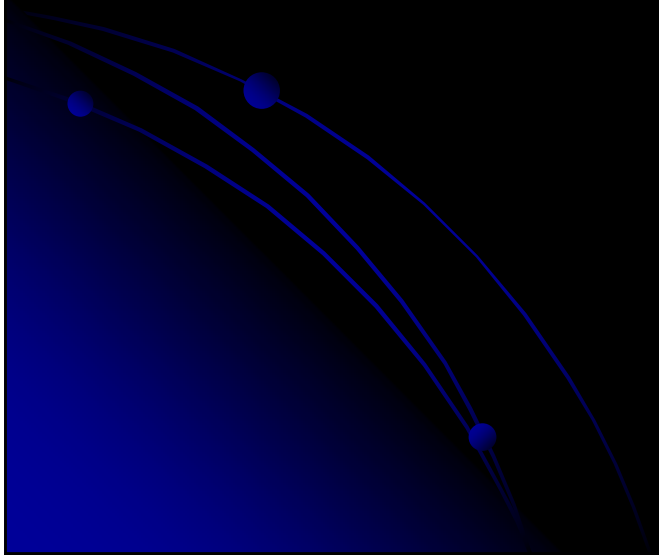


China will soon become the number one English speaking country in the world.

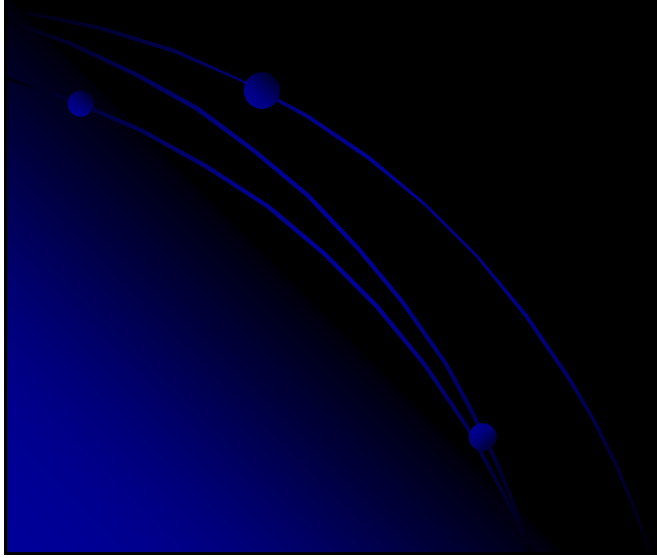


If you took every single job in the U.S. today and shipped it to China . . .

China would still have a labor surplus.



During the course of this 7 minute presentation . . .



- 60 babies will be born in the U.S.
- 244 babies will be born in China.
- 351 babies will be born in India.

The U.S. Department of Labor estimates that today's learner will have 10-14 jobs . . .

By the age of 38.

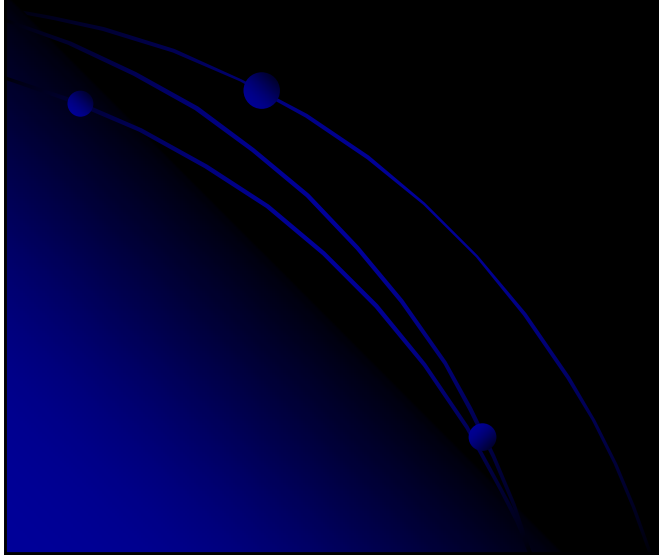
According to the U.S. Department of Labor . . .

1 out of 4 workers today is working for a company they have been employed by for less than one year.

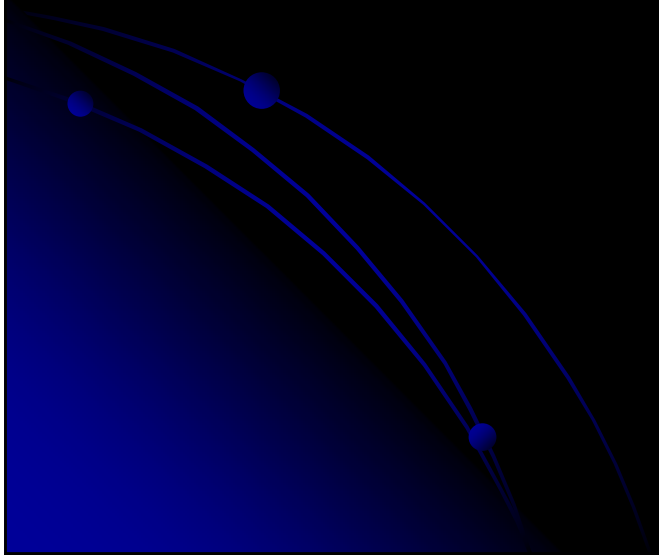
More than 1 out of 2 are working for a company they have worked for, for less than five years.

According to former Secretary of Education Richard Riley . . .

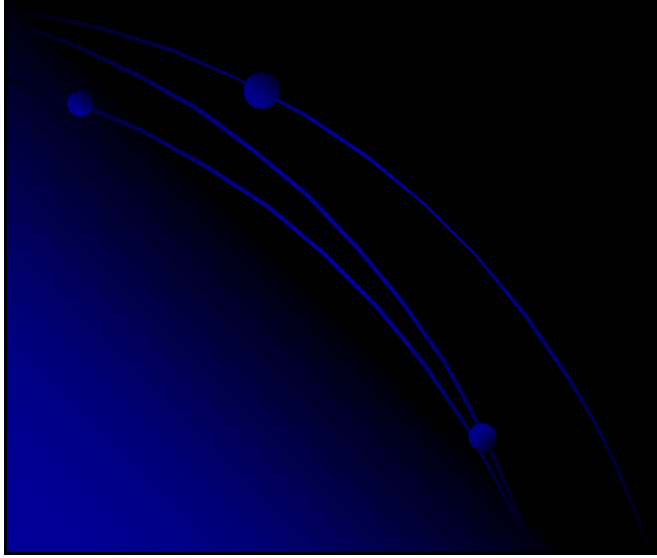
The top 10 in-demand jobs for 2010 don’t exist in 2004.



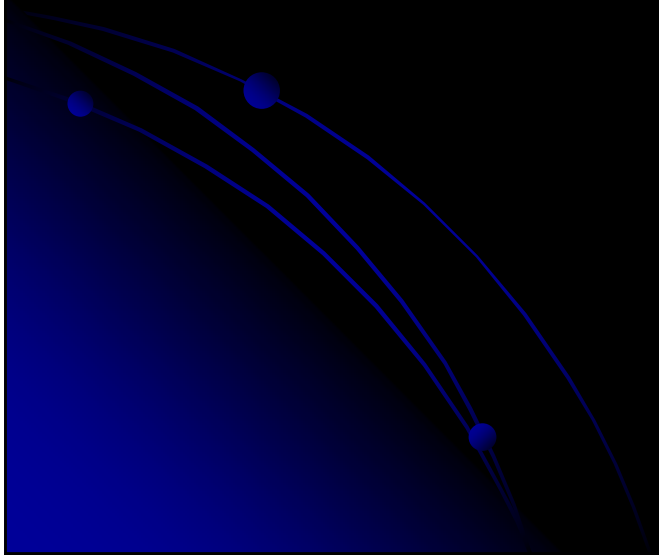
We are currently preparing students for jobs that don’t yet exist . . .



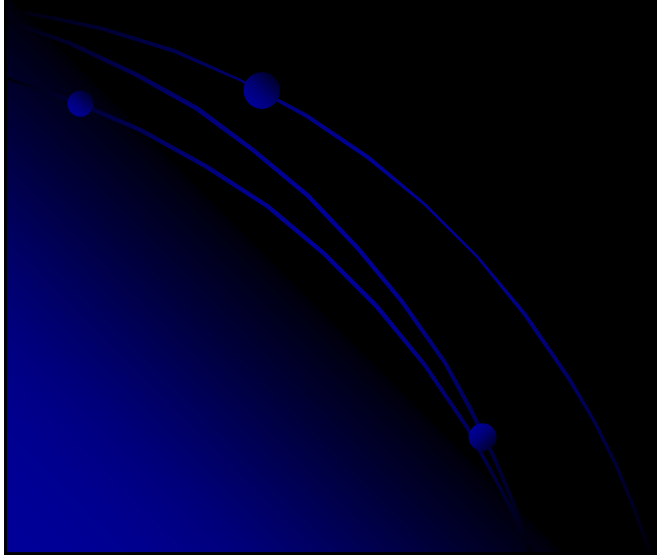
Using technologies that haven’t been invented . . .



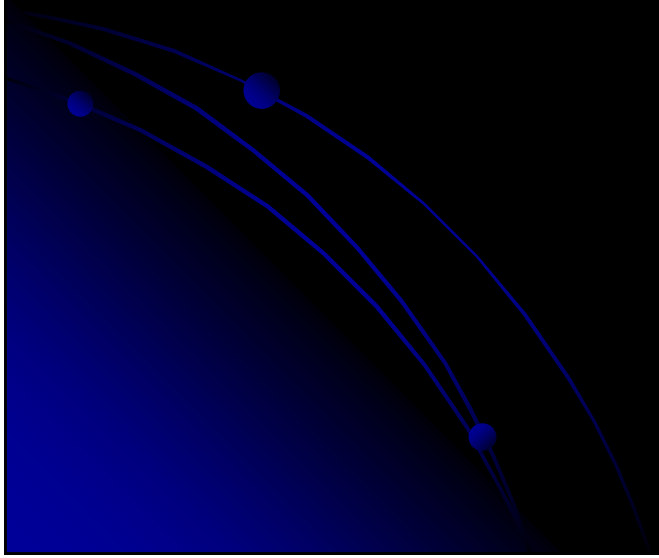
In order to solve problems we don’t even know are problems yet.



Did you know . . .



The U.S. is 20th in the world in broadband Internet penetration. (Luxembourg just passed us.)

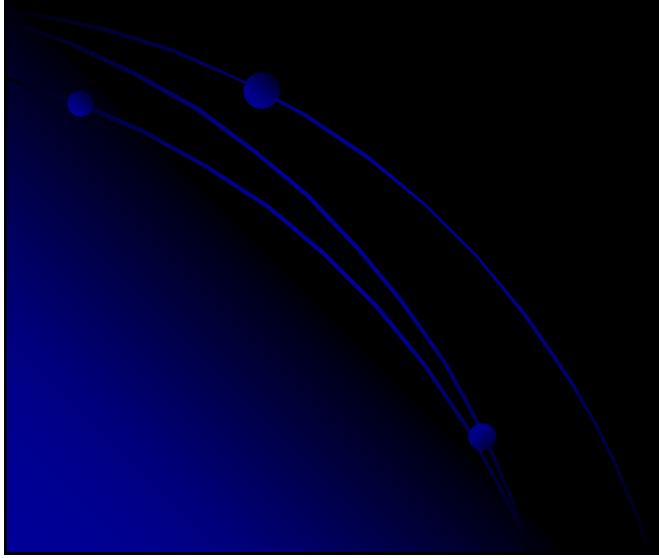


The U.S. ranks 17th in the world in PISA science tests, and 24th in the world in math tests. (Finland is #1)

In 2002 alone Nintendo invested more than $140 million in research and development.

The U.S. Federal Government spent less than half as much on Research and Innovation in Education.

The Iraq war has cost over 500 billion dollars to date.



That would hire over 8 million new teachers

The Federal technology budget for education has been reduced over 65% in the past five years

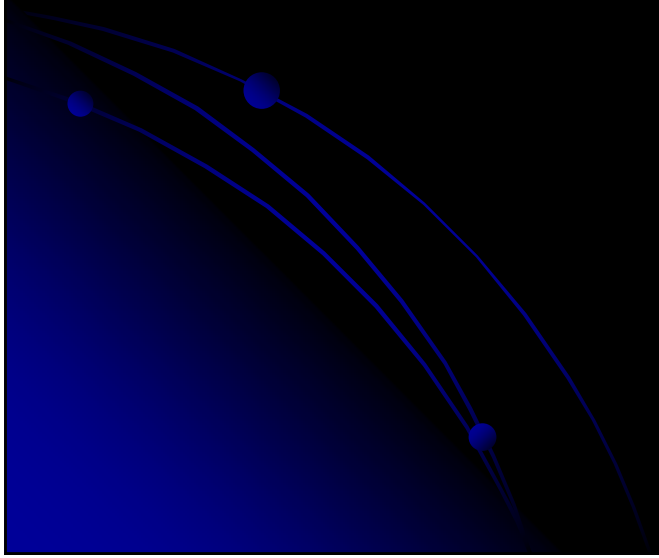
California Spending per Student

1972	19th in the nation
1985	26th in the nation
2005	34th in the nation
2007	46th in the nation

For every $1.00 we spend
New York or New Jersey spends $1.80

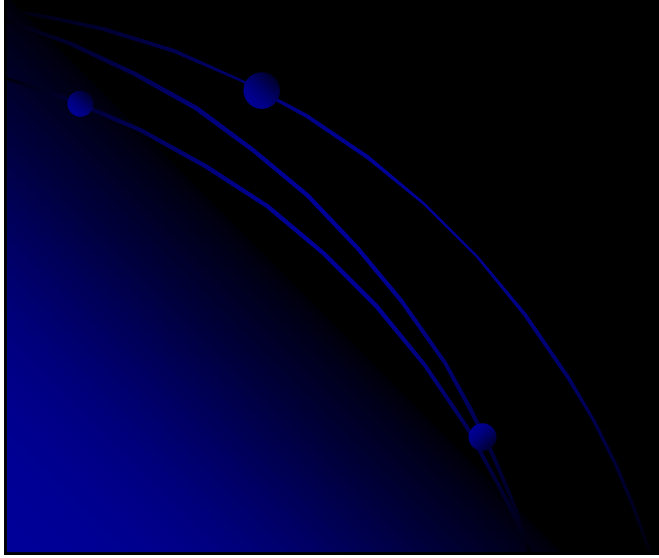
The typical American school has:

30% more teachers
61% more site administrators
92% more counselors
than California

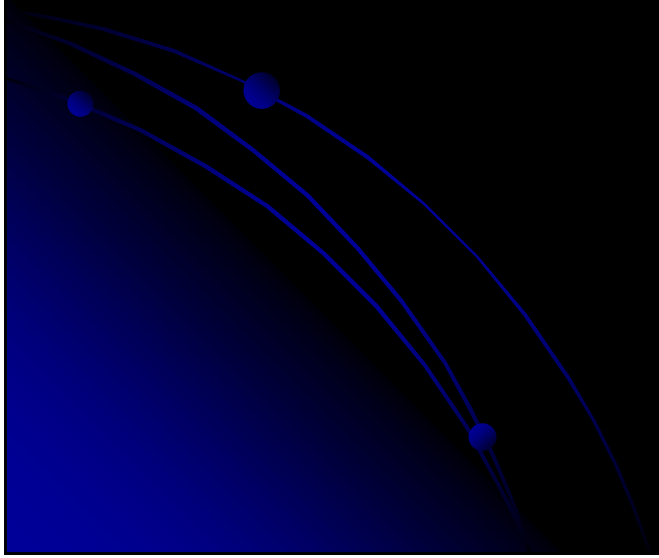


Three-quarters of High School Technology Education programs have disappeared since 1980.

Did you know . . .

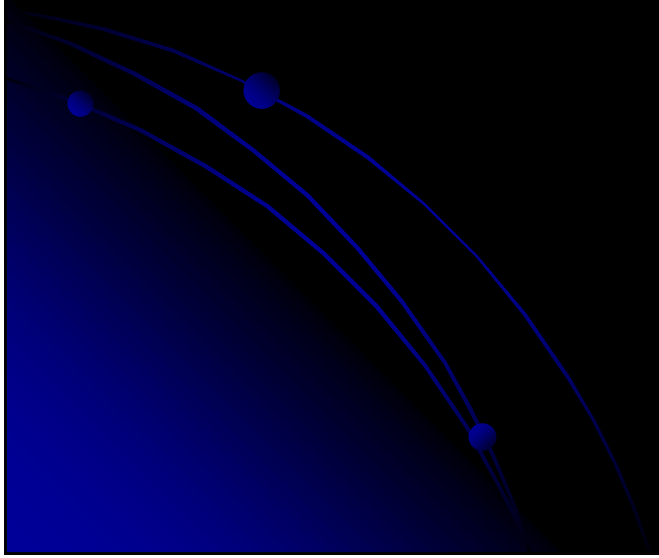


1 out of every 8 couples married in the U.S. last year met online.



There are over 100 million registered users of MySpace. (August 2006)

The average MySpace page is visited 30 times a day.



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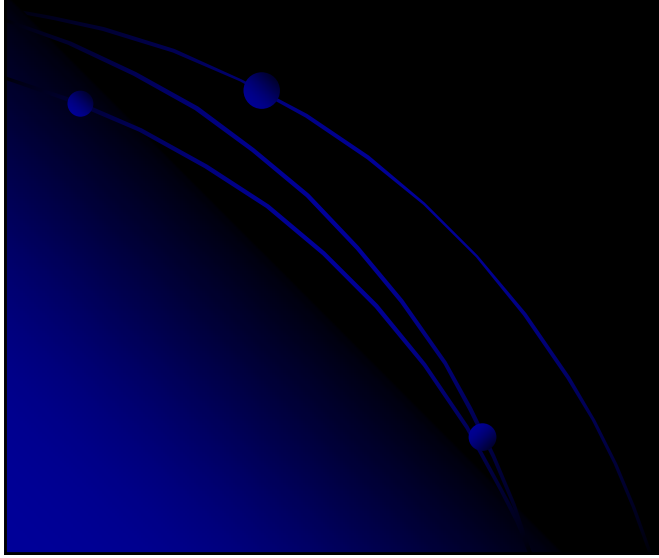
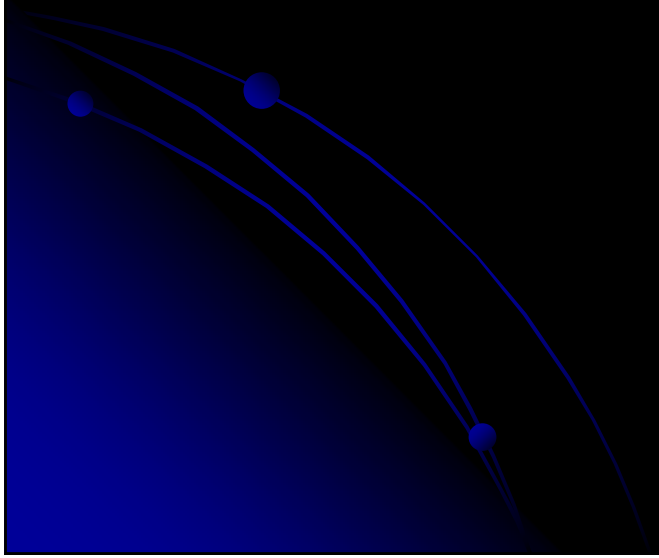
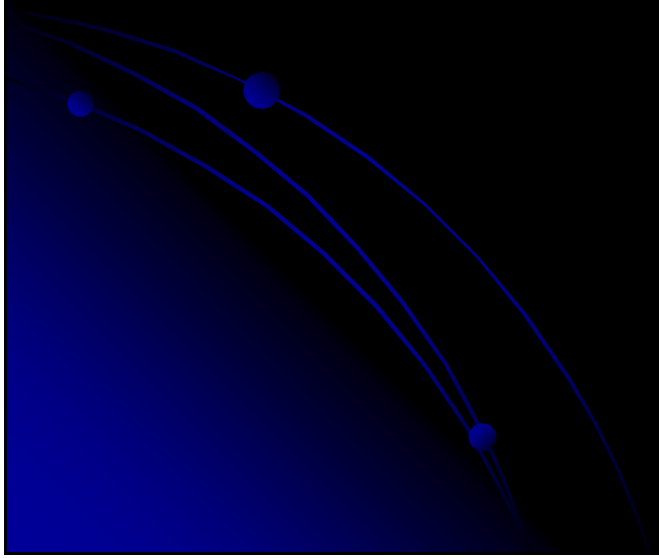


We are living in *exponential* times.

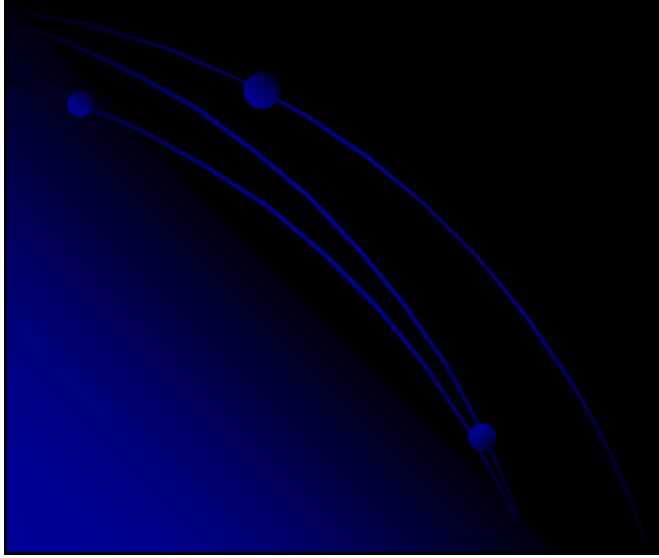


There are over 2.7 billion searches performed on Google each month.



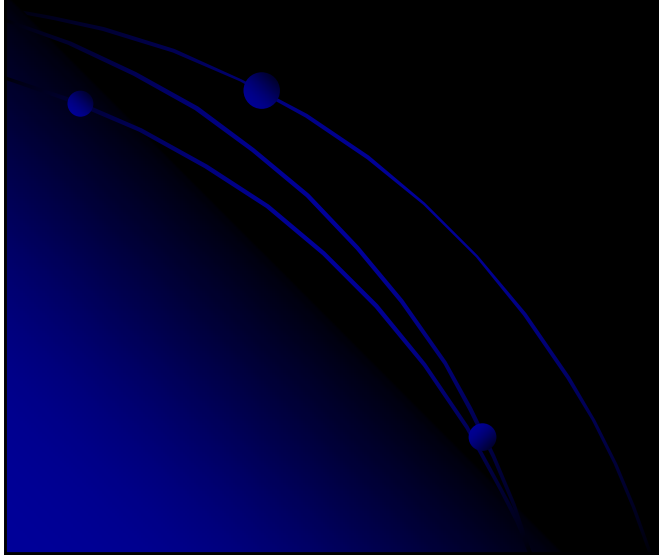
The number of text messages sent and received every day exceeds the population of the planet.

There are about 540,000 words in the English language . . .

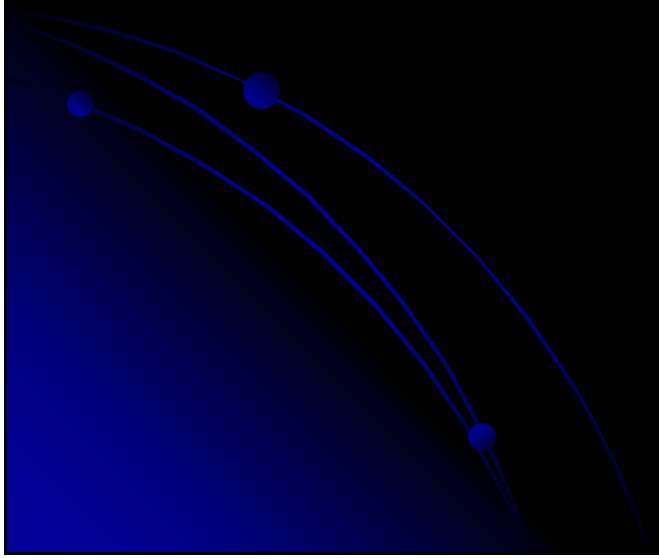


About 5 times as many as during Shakespeare’s time.

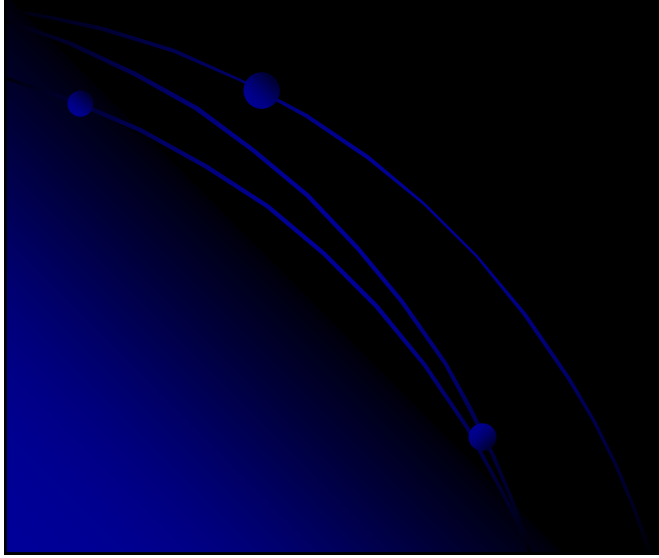
More than 3,000 new books are published . . .



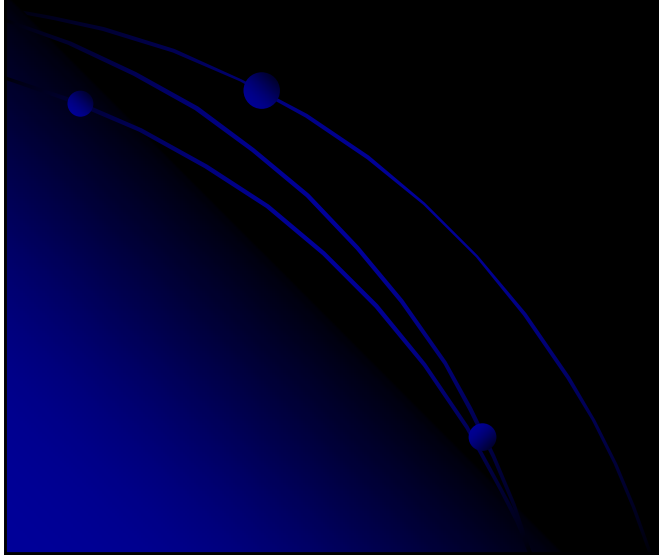
Daily.



It’s estimated that a week’s worth of New York Times . . .

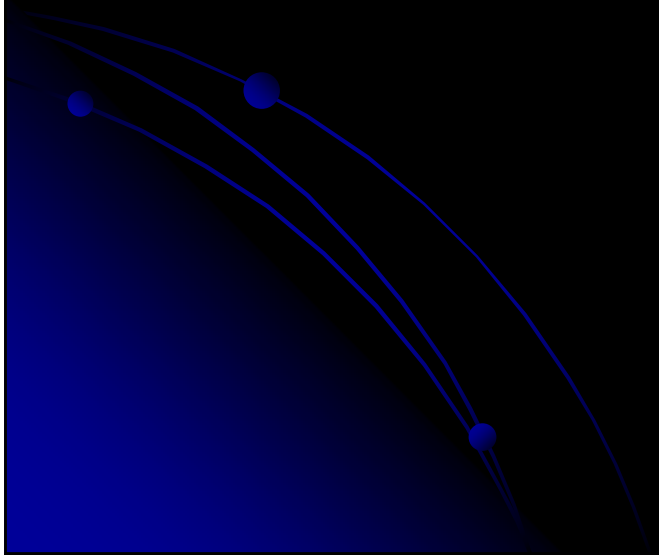


Contains more information than a person was likely to come across in a *lifetime* in the 18th century.

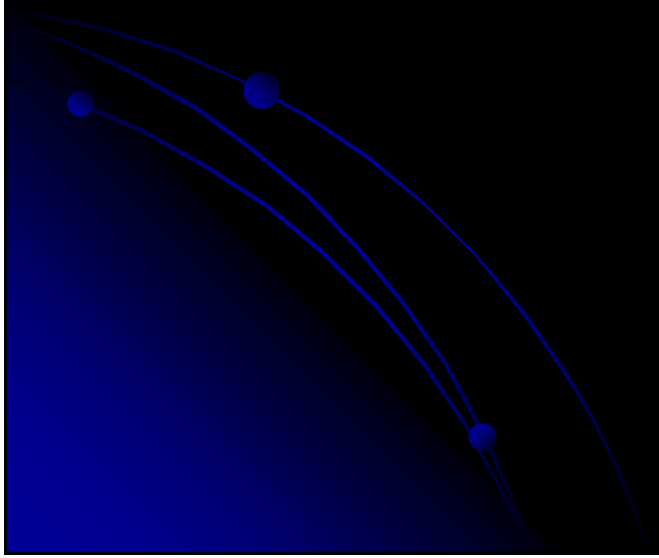


It’s estimated that 40 exabytes (that’s 4.0×10^{19}) of unique new information will be generated worldwide this year.

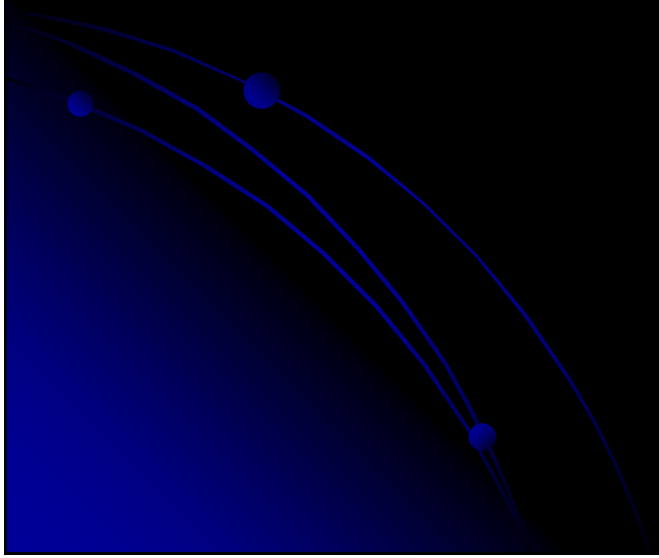
That’s estimated to be more than in the previous 5,000 years.



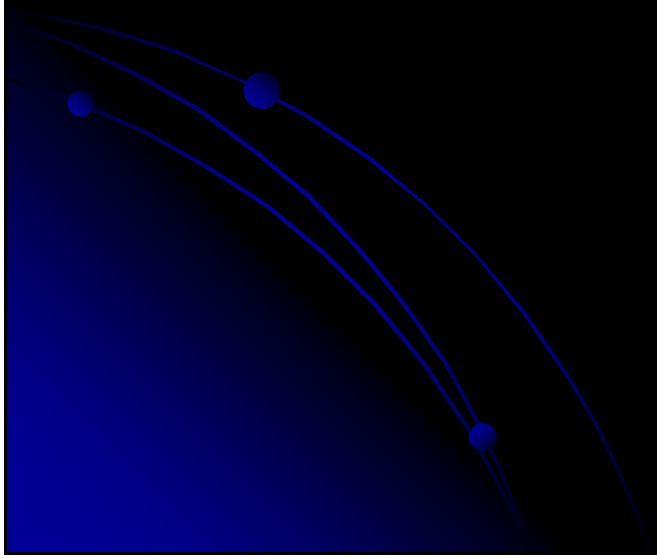
The amount of new technical information is doubling every 2 years.



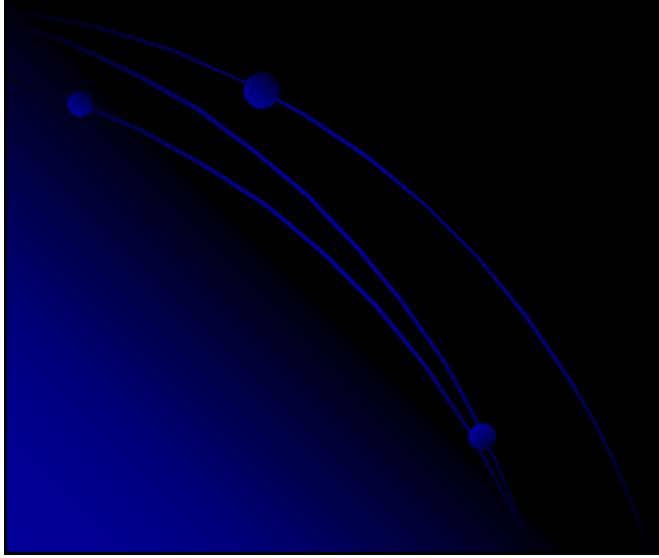
It’s predicted to double every 72 hours by 2010.



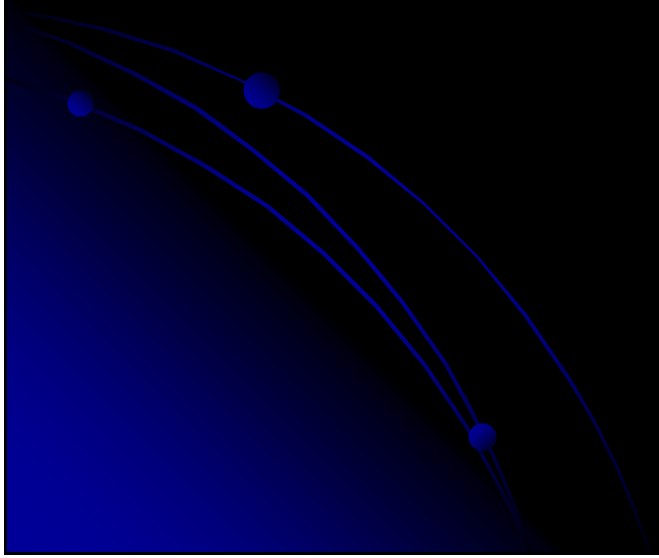
Third generation fiber optics has recently been separately tested by NEC and Alcatel . . .



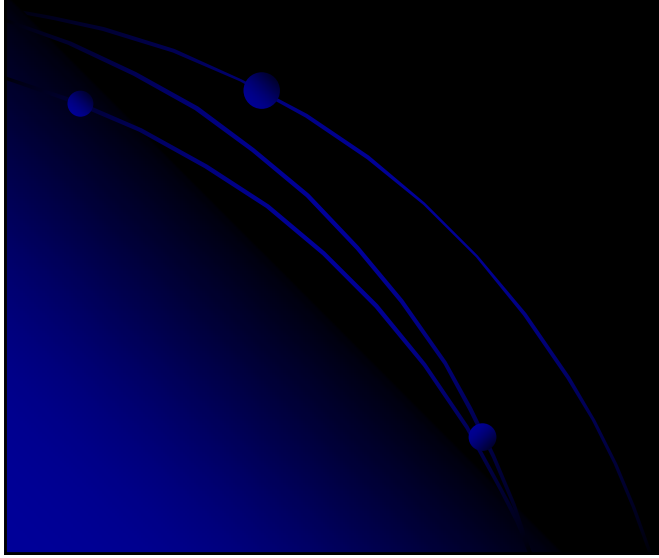
That pushes 10 trillion bits per second down one strand of fiber.



That’s 1,900 CDs or 150 million simultaneous phone calls every second.

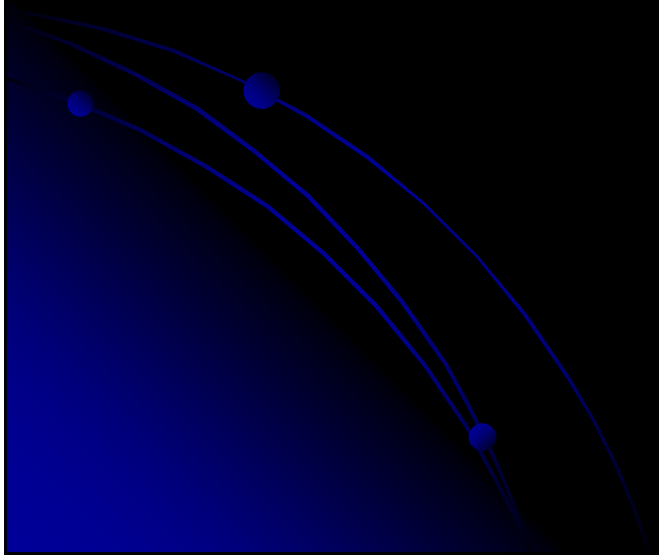


That speed is tripling about every 6 months and is expected to do so for foreseeable future.

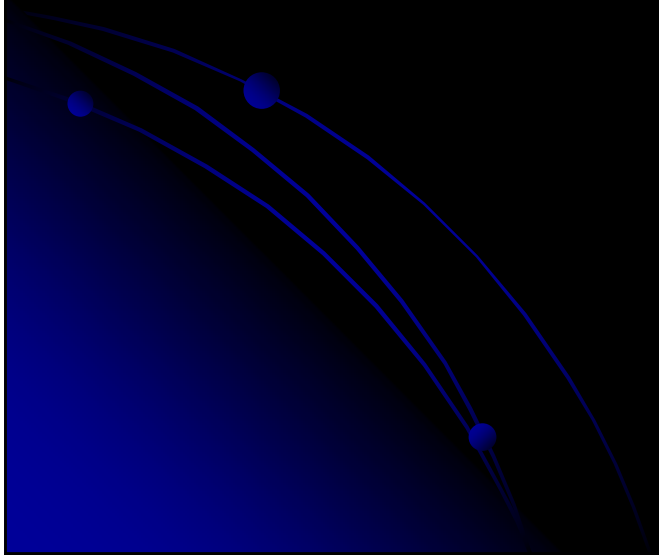


The fiber is already there, they're just improving the switches on the ends. Which means the marginal cost of these improvements is effectively $0.

Predictions are that e-paper will be cheaper than real paper.



47 million laptops were shipped worldwide last year.

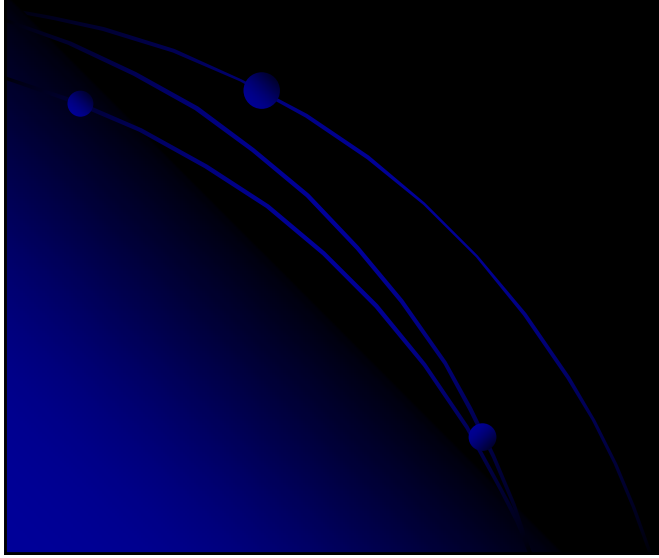


The $100 laptop project ($188) is expecting to ship millions of laptops a year to children in underdeveloped countries.

Predictions are that by 2013 a supercomputer will be built that exceeds the computation capability of the Human Brain . . .

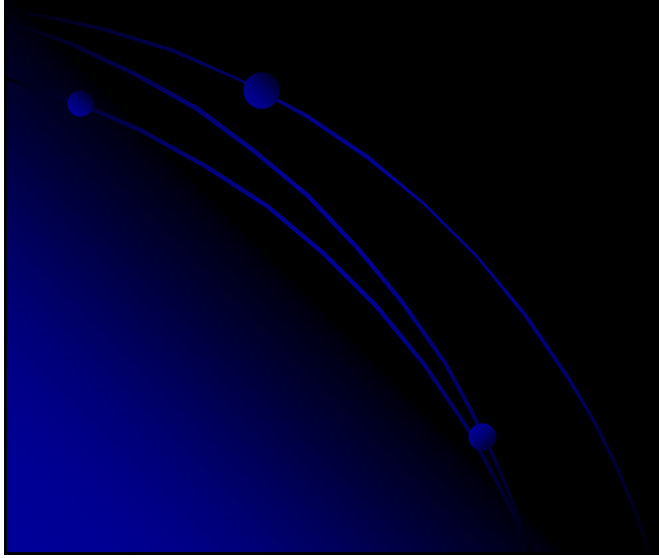
By 2023, a $1,000 personal computer will exceed the computation capability of the Human Brain . . .

And while technical predictions further out than about 15 years are hard to do . . .

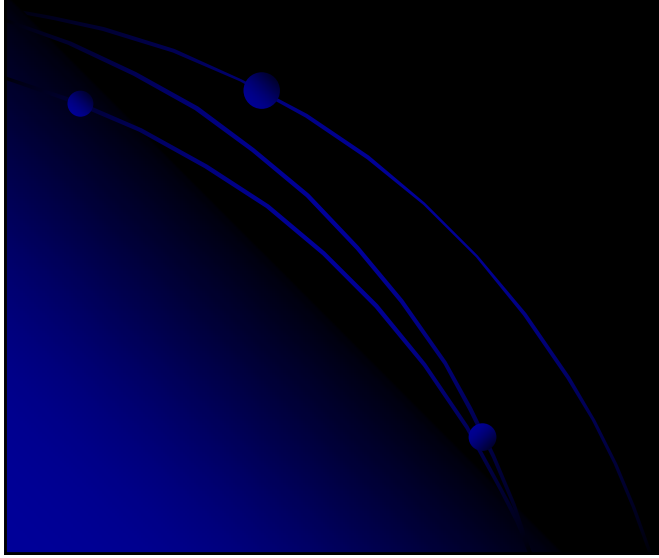


Predictions are that by 2049 a $1,000 personal computer will exceed the computational capabilities of the *human race*.

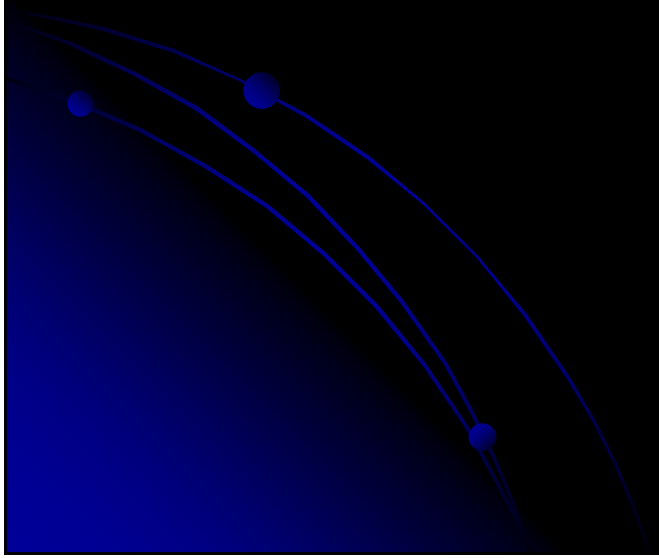
What does it all mean?



Shift Happens.



Now *you* know . . .



Why change is needed…

In the 20th century, the approach to education was to focus on ‘learning-about’ and to build stocks of knowledge and some cognitive skills in the student to be deployed later in appropriate situations. This approach to education worked well in a relatively stable, slowly changing world where students could expect to learn one set of skills and use them throughout their lives. Careers often lasted a lifetime. But the 21st century is quite different. The world is continuously changing at an increasing pace. Skills learned today are apt to be out-of-date all too soon. When technical jobs change, we can no longer expect to send a person back to school to be re-trained or to learn a new profession. By the time that happens, the domain of inquiry is likely to have morphed yet again.

-John Seely Brown

20th Century vs. 21st Century Learning

20th Century Classrooms	21st Century Classrooms
Time-based	Outcome-based
Focus on memorization of discrete facts	Focus on what students KNOW, CAN DO and ARE LIKE after all the details are forgotten
Lessons focus on lower level of Bloom's Taxonomy – knowledge, comprehension and application	Learning is designed on upper levels of Bloom's – synthesis, analysis and evaluation
Textbook-driven	Research-driven
Passive learning	Active learning
Learners work in isolation – classroom within 4 walls	Learners work collaboratively with classmates and others around the world – the Global Classroom
Teacher-centered: teacher is center of attention and provider of information	Student-centered: teacher is facilitator/coach
Little or no student freedom	Great deal of student freedom
Fragmented curriculum	Integrated and Interdisciplinary curriculum

20th Century vs. 21st Century Learning

Low expectations	**High expectations – "If it isn't good, it isn't done" We expect, and ensure, that all students succeed in learning at high levels. Some may go higher – we get out of their way to let them do that.**
Teacher is judge. No one else sees student work.	**Self, Peer and Other assessments. Public audience, authentic assessments.**
Curriculum / School is irrelevant and meaningless to the students.	**Curriculum is connected to students' interests, experiences, talents and the real world.**
Print is the primary vehicle of learning and assessment.	**Performances, projects and multiple forms of media are used for learning and assessment.**
Diversity in students is ignored.	**Curriculum and instruction address student diversity.**
Literacy is the 3 R's – reading, riting and rithmatic	**Multiple literacy's of the 21st century – aligned to living and working in a globalized new millennium.**


File Edit Controls View Store Advanced Help
iTunes
View
Search iTunes Store
LIBRARY
Music
Movies
TV Shows
Podcasts
Radio
STORE
iTunes Store
PLAYLISTS
Party Shuffle
jess music
90's Music
Music Videos
My Top Rated
Recently Added
Recently Played
Top 25 Most Played
iTunes U
Stanford
Sign In
STANFORD UNIVERSITY
Stanford to go. In your home. In your car. In your pocket.
CATEGORIES
Science and Technology
Arts and Humanities
Business
Education
News and Sports
Health and Medicine
Campus Life
Communications and Media
Law and Politics
International Relations
Travel Study
Personal and Professional De...
The Stanford Challenge
WHAT'S NEW
Quantum Mechanics
Esalen: Education for Life on ...
Alarm Will Sound: Post-Con...
The Design of Future Things: ...
Google Design in Practice: t...
Speak Freely
SEE ALL
STAFF FAVORITES
Courting Disaster Roundtabl...
Stanford Online Tour
The Literature of Crisis
Promoting Democracy Abroa...
Anxious Times (with Ted Koppel)
Technology, Culture, and Nati...
Stanford Musicians
Why Zebras Don't Get Ulcers
The Dalai Lama at Stanford
An Evening with Leonard Co...
STANFORD COURSES
See All
Quantum Mechanics
Human-Computer Interacti...
Hannibal
THE STANFORD CHALLENGE: SEEKING SOLUTIONS, EDUCATING LEADERS
See All
The Initiative on Environme...
The International Initiative
The Initiative on Human Health
FEATURED CONTRIBUTORS
See All
Freeman Spogli Institute for...
Stanford Continuing Studies...
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