

2020 Vision

May 28, 2020

Graduation – Class of 2020

LPS Stadium

Webcast (live and archive) at [http:// . . .](http://...) (put a “glad you were curious” page at this address for anyone that checks)

Thank you Superintendent Goodman, Principal Punjabi, honored guests and most especially the Class of 2020. I’m honored to be chosen to speak as you are entering the next stage of your lives – and as I am retiring. I’ve been asked to look back at the years that you have been attending Littleton Public Schools and try to provide some perspective on the changes in technology – and in instruction – over the 13 years you’ve been in school.

2007

Most of you began Kindergarten in the fall of 2007. Even though you most likely were not aware of this at the time, that was a watershed year here at Arapahoe as we began our 21st Century Learners initiative, which we dubbed “2020 Vision” that fall. We knew that the students starting Kindergarten would graduate from Arapahoe in the year 2020, so we consciously tried to envision what the world would look like in that year. We wanted to make sure that – as much as possible – we provided an education both to our current students - and to our future students just starting school – that would allow them to be successful in the year 2020 and beyond. We made a promise to all our current and future students that we would provide them both the tools and the skills necessary to be successful learners, workers, and contributing members of the global community in the 21st century. [kindie pic of Abby]

Interestingly, 2007 was also the year that the \$100 laptop project began distributing their first set of laptops. While they missed the \$100 mark by a bit - they cost \$145 - they were well on their way and over 5 million students in 5 underdeveloped nations suddenly had direct access to 21st century information and communication technologies. At Arapahoe we encouraged – for the first time – students to bring their own laptops and connect wirelessly to the Internet through our network. There were only a handful at the start of the school year, but well over 100 students were consistently bringing their laptops to school by the end of the school year. [pic of \$100 laptop]

2008

In 2008, Littleton Public Schools, along with all other Denver Metro Area school districts, reach agreement with Comcast to house WiMax Extreme broadcast stations. The agreement allowed Comcast to saturate the Denver Metro Area with high-speed wireless Internet for less than the current cost of wired broadband. The school districts got free wireless Internet access and direct, wired connections to the higher-speed, academic-use-only Internet 2 backbone. With the increased bandwidth at school – and the ubiquitous wireless access to the Internet throughout the Denver Metro area – laptop computer penetration exploded in the wealthier areas. Over 600 students at Arapahoe

were using their laptops at school on a daily basis. Meanwhile, the \$100 laptop was now down to \$120 and shipped its 12 millionth unit this year. Arapahoe began working collaboratively with 10 “sister” schools on 6 different continents, including 2 schools that were recipients of the \$100 laptop. [Comcast logo, WiMaXtreme, global map]

In June the Business world was turned upside down as Amazon purchased eBay. The newly formed A-Bay immediately changed the way goods were bought and sold, as the price of everything became negotiable and was constantly fluctuating based on supply and demand. Traditional retailers initially scoffed at the new model, but soon had to transform their practices as consumers refused to pay a fixed price for anything. [A-Bay mockup]

The same week Google quietly announced the purchase of Logitech and Shure. [possibly Logitech, shure logos]

2009

In 2009, 10 teachers at Arapahoe began podcasting all their classes. They wore high-quality lapel microphones and their voices were recorded and then uploaded to a server for automatic distribution through RSS feeds. Students and parents downloaded the podcasts over 200 hundred thousand times, but a chief complaint was the lack of student voices as well as any video component.

In October, the \$100 laptop project ships its first true \$100 laptop. They have now shipped over 32 million laptops worldwide. Due to the competition and manufacturing efficiencies this project has created, the average price of “corporate” laptops is now less than \$500. Over 1100 Arapahoe students are now bringing laptops every day, causing considerable strain on our network infrastructure.

Google purchases the Associated Press and ABC/Disney, as well as lectures from 32 universities including Stanford, MIT and Harvard. Yahoo purchases Reuters, NBC and Universal Studios, as well as lectures from 40 universities including Princeton, University of Michigan and Cal Tech.

2010, 2011

In January of 2010, Google announces GoogleCam, a video solution that integrates a high-quality webcam, lapel microphone, area microphone, and uploading software. The ceiling mounted GCam automatically tracks and synchs with the lapel microphone, and the area microphone picks up audio from the classroom. The software automatically captures the computer screen and synchs it with the video and audio, then uploads the completed GCast to Google’s servers. The uploaded GCast is managed from a dashboard where teachers can create multiple channels, each with their own RSS feed. Each channel has an associated blog and GoogleDocs environment, synchronizes with gmail, and is all managed by a learning management system that uses Moodle as its base.

By August, Arapahoe finishes its network upgrade and installs GCams in ten classrooms. Demand for the content is overwhelming, so GCams are installed in the rest of our classrooms over Winter Break. In January of 2011, the Warrior Portal launches, a single environment that links all teacher and student content in one location. Arapahoe announces that beginning in the fall of 2013, they will do away with grades and transcripts altogether, moving to a “learning exhibition” system rooted in the students’ electronic portfolios. Classes at Arapahoe routinely “telelearn” with our 10 sister schools around the world, and parents, grandparents and others interested in education routinely observe via the web – and occasionally participate – in classes at Arapahoe. All students at Arapahoe now have a laptop, as the average cost has dipped below \$400 – they are a required school supply. Most are purchased by parents – but others are provided by the school district based on a program similar to free and reduced lunch. [webcam, microphone]

In March of 2011, Microsoft purchases Yahoo and Dell, sending its stock price soaring. Bill Gates is now worth over \$500 billion. That same week, Google quietly announces the purchase of five startup companies in the areas of solar energy, battery technology and quantum computing. Google also quietly purchase two manufacturing conglomerates in China and vast stretches of land in sub-Saharan Africa. [college logos, ABC, factory]

2012, 2013

In early 2012, Arapahoe High School and Arapahoe Community College announce plans to form a new, consolidated educational institution. When it opens in the fall of 2013, students will enroll in a four-year program anytime between their 7th and 10th grade year, and will not be limited by their place of residence. Upon graduation, all students would have a minimum of two years of college credit transferable to all state universities in Colorado and the majority of national universities. Students would be charged the current community college tuition, although needs-based scholarships would be available to everyone. The State of Colorado immediately blocks the program, claiming it exceeds the school district’s authority and violates the right to a free public education. A group of parents sue the state and, in June 2013, the U.S. Supreme Court rules in favor of the parents. Due to the delay because of litigation, Arapahoe Community School will now open in the fall of 2015. [AHS, ACC, State of Colorado, Supreme Court]

In September of 2013, Google shocks just about everyone by purchasing controlling stakes in Ford Motor Company, Apple Computer, and AMD, and Al Gore joins Google’s board. Google’s stock price plunges 45% in a single day as Google refuses to disclose their plans, and shareholders demand an emergency recall vote for the board of directors. The vote is scheduled for mid-December. At the beginning of December, Google announces that Warren Buffet has joined the board and that Berkshire Hathaway has been purchasing Google stock since the drop in early September. The board promises that within 12-18 months their plans will be clear and urges shareholders to stay the course. A slight majority of shareholders decides to give the board 12 more months to make their plans clear. [Ford, Apple, AMD, Berkshire-Hathaway, stock graph going down]

2014

On December 1st, 2014, Google holds a press conference to announce breakthroughs in solar energy technology, battery technology, energy transmission and quantum computing. GooglePanels quadruple the efficiency of current solar panels at one-third of the cost. All of Google's data centers around the world will be powered by GooglePanels by the end of the year, saving the company tens of millions of dollars per year in electricity costs and earning it an additional 30 million dollars a year in carbon rebates. Within three years Google expects to ramp up production of GooglePanels to replace two-thirds of the electricity and natural gas usage on the planet. GooglePanels can be manufactured in a variety of forms, including roof shingles for single-family homes, and vast arrays of super-efficient panels in uninhabited areas. Google announces they will provide free electricity to 15 African countries using their GoogleGrid in the African deserts. [GooglePanel, Solar panel array]

Google also announces GCAR, a new electric car to be produced by Ford that utilizes new battery technology that provides over 1200 miles on a single charge. For homeowners with GooglePanels installed on their roofs, this amounts to virtually free transportation (other than the cost of the car and road-use taxes). Each GCar also serves as a wireless access point and wireless signal extender, becoming part of a worldwide Google Mesh Network that will achieve over 75% coverage over inhabited land masses within 12 months. [futuristic looking car]

Finally, Google announces a working prototype of a fully-functional quantum computer, currently equivalent to 2012 chip speeds for less than 5% of the cost. The chips require so little power that laptops run on solar energy and water vapor collected from the atmosphere. Using AMD's fabrication facilities, they anticipate moving all of their data centers over to the new chip architecture by the June of 2015. Soon after that, they anticipate releasing the chips to computer manufacturers. [quantum computer?]

Google's stock price quadruples overnight – and by the end of the year its market value exceeds \$1.5 trillion. [stock graph going up]

2015, 2016

In August of 2015, Arapahoe Community School officially launches. Over 5,000 students enroll, including 2100 on the Arapahoe High School campus – the rest attend at Arapahoe Community College or are concurrently enrolled in “home school.” [Arap Comm School]

In September, Google and Apple announce the first shipping quantum computer, the Imagine. The operating system and all Apple applications are now completely open source – there is no proprietary software that ships on the machine. The computer is free, except for \$19.95 shipping and handling and a \$40 yearly subscription to the new GooglePremium. All Imagine owners have exclusive access to GooglePremium, an aggregation of all Google's vast resources of information, including scanned books from

10 major university libraries, and “early-bird” access to A-Bay merchandise. Google projects over \$20 billion in advertising revenue from GooglePremium alone in the first year, and doubling every year thereafter for at least the next 10 years. [Imagine, GooglePremium]

The \$100 laptop project immediately announces that it will begin distributing Imagine for free to all children between the ages of 5 and 15 in underdeveloped countries. They anticipate it will take 4 years to reach 80% of the world’s poor children. Microsoft approaches Google and asks to join forces – Google accepts and integrates Microsoft’s content into GooglePremium.

Intel sues Google, claiming unfair business practices. Intel v. Google is fast-tracked to the U.S. Supreme Court and, in May of 2016, the Supreme Court rules in favor of Google. Google immediately announces that it will launch Google University next year. [Intel v. Google, Supreme Court]

2017

In January of 2017, GoogleYou officially opens, initially offering content equivalent to 9th grade through a Master’s degree. There is no tuition, as ad revenue from GooglePremium more than covers Google’s infrastructure and content acquisition costs. Google accepts applications from secondary schools and colleges around the country to be GoogleYou Partners, with the Partners getting a per-student cut of the GooglePremium ad revenue. Arapahoe becomes a Partner, does away with its own formal schedule of classes, and organizing itself around student interest and need and GoogleYou’s offerings. Arapahoe teachers work in teams to facilitate student learning in a variety of subject areas. [GoogleYou, bells, GoogleYou Partner]

2018

In February of 2018, President Obama announces that the U.S. no longer imports any oil or natural gas, and that the federal budget has a \$500 billion surplus due to energy and national security related savings. For the first time, global carbon emissions are lower than in the previous year.

Arapahoe’s enrollment approaches 20,000 students across Colorado. Each of the high school athletic leagues aligns themselves with a major state university. The Continental League joins the University of Colorado system, with Arapahoe Community School being the high school model to emulate.

2019

In April of 2019, Google and Apple announce the EyeMagine, a new version if the Imagine that utilizes a display that is projected onto the user’s retina, eliminating the need for an external display. The EyeMagine is the size of a deck of cards and wirelessly transmits data to the retinal projector mounted on eyeglass frames. The image size is controlled by the user, but can simulate up to a 56 inch display. Most users typically use it as a heads-up display supplement to “real reality”, providing a variety of information

about whatever environment they are interacting with. The EyeMagine is controlled either by voice or by iThumb, a wireless thumb keypad similar to those that used to be found on cell phones.

School looks very different than when you started in Kindergarten. While a fairly large number of students do choose to learn from home, the majority of students continue to attend a physical high school, coming together to interact with their peers socially, intellectually and athletically. The rigid bell and class schedules of the past are gone, replaced by a much richer and more robust learning experience. Students are part of a vast learning network, which includes - but is not limited to - their physical classmates. Students are no longer constrained by a rigid curriculum, but are free to pursue a much higher level of inquiry. All students are responsible for mastering the essential learnings and for interacting with a wide range of ideas, and must demonstrate their knowledge on a regular basis in order to receive feedback on their learning and growth. But they are also free to pursue their passions, to truly take charge of their own learning , to take their education to a level rarely seen before.

2020

That brings us to the present, May of 2020. The 13 years that you have been in school have seen exponential changes, not only in the advances in technology, but in the ability of each person to live and learn and grow as part of a global community. Despite the fears of many that technology would be isolating, instead it has brought the human race closer together, helping us realize that all humans are created equal and that we are responsible for each other. We still have many problems to solve and injustices to right, but we have made spectacular advances in the last 13 years. As you are about to enter the next phase of your lives, I would encourage you to live by the motto that has driven Arapahoe since 2007 – change the world. As Robert Kennedy said more than 50 years ago, “Some men see things as they are and say why. I dream things that never were and say why not.” I ask you to continue the vision, to dream and say “why not.” Thank you.