

# **EDUCATIONAL TECHNOLOGY PLAN**

The Head-Royce School

March 2006

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## **EDUCATIONAL TECHNOLOGY COMMITTEE**

Anissa Alston, upper school coordinator, technology assistant  
Molly Barrett, middle school coordinator, math/science teacher  
Holly Below, 5<sup>th</sup> grade teacher  
Karen Bradley, upper school coordinator, history chair  
Jo Howard, lower school computer teacher, admissions assistant  
Jim Jones, middle school coordinator and 6<sup>th</sup> grade teacher  
Ray Louie, director of educational technology  
Marlene Sanders, lower school computer teacher, computer technician  
Owen Von Kugelgen, physics teacher

## I. INTRODUCTION

### History

The original Educational Technology Plan (Spring 1994) envisioned an upcoming Information Age, an information-rich Internet, reaching each classroom with computers and LCD projectors. The Internet at Head-Royce was accessed through 9600 baud modems without graphical browsers. Head-Royce had 50 standalone computers (pre-network). Cutting edge technology was laserdiscs and CD-roms. Digital video was in its infancy. We are now well launched into the 21st century with more than 300 times the Internet bandwidth for close to 400 networked computers. 90% of our buildings have wireless access. Most of our teachers have school laptops. Almost all of our middle and upper school classrooms have LCD projection systems.

At Head-Royce, we are proud of our teachers and students. Over this past decade, their use of technology has become seamlessly integrated into the curriculum. Our plan, twelve years ago, was to encourage teachers through staff and curriculum development to integrate technology into the classroom. With limited funds, we initially offered technology grants to faculty for software but soon expanded to include hardware. As technology has become a permanent fixture in education and our technology budget has stabilized, our technology grants have grown to include curriculum and staff development. Surprisingly, many of our teachers had become early adopters experimenting with programming, modems, robotics, websites, digital video, digital photography, curriculum-based software, online research, email, online forums, LCD projectors, laptops, digital audio, tablet pc's, pdf's, and much more. In this New Revised Technology Plan, we are ready to re-evaluate and build a new model.

Teacher and student access to computers and the Internet has been excellent for the past 5 years, allowing all to focus on the actual use and application. The original plan did not map out the classroom computers, LCD projectors, internet connections, or the curriculum. The plan encouraged the technology growth at Head-Royce to be teacher driven. Ten years later, we can celebrate in the success of their goals: teachers have truly integrated technology into their curriculum and teaching styles; students and teachers have abundant access to dependable technology throughout the campus; students and teachers continue to push the envelope in the uses of technology. Whereas, ten years ago, the committee was predicting the advent of the Internet-centric world, today we must try to envision beyond.

## **STATEMENT OF PHILOSOPHY**

The purpose of a Head-Royce education is to inspire in our students a lifelong love of learning and desire for academic excellence, to promote understanding of and respect for the diversity that makes our society strong, and to encourage constructive and responsible citizenship.

A Head-Royce education cannot be complete without a thorough understanding and mastery of the major tools of the modern society. We are part of the Internet generation. Technology is an integral aspect of personal, school, and business life. It is both the primary mode for accessing information and one of the most powerful tools for analyzing and presenting information.

## **GOALS**

1. Every student will be exposed to useful technology applications in a wide variety of academic disciplines.
2. Classes in keyboarding, word processing, spreadsheets, video, graphics, digital research skills, presentation software, graphing calculators and programming will be available to all students.
3. Faculty in all disciplines will be familiar with technology and applications relevant to their subjects. All faculty members will have well-maintained web sites.
4. A logical course sequence in computer science will continue to be available to students with strong interest in the field.
5. Technology will be used to help our students to become better critical thinkers and problem solvers.
6. The school will emphasize and model the of ethical use of technology through its policies and practices, Faculty will honor software copyright laws and licensing agreements. Students will not be allowed to make illegal copies of school software and will be encouraged to behave lawfully at home.
7. Technology will be made available to faculty and students as necessary. Faculty will be actively encouraged through Technology Innovation Grants to explore new educational applications for technology.
8. Students and faculty will develop strong digital research skills including information and media literacy as well as digital communication.

## II. CURRICULUM

1. The major objective of technology and curriculum is to effectively use technology to present curriculum to students and enhance learning by making technology available to every student. At every grade level, students will advance in their ability to use technology for research and presentation. This use of technology includes research, data collection and analysis using visual, oral and audio resources.
2. Curriculum has been and will continue to be redesigned to help build knowledge from the vast amount of information available to students. Through the use of technology, curriculum can be tailored to the needs of individual students. Projects and presentations can take a variety of forms, utilizing technology to its fullest.

### Curriculum Examples:

Multimedia presentations on historical fiction book reports using PowerPoint and science research based projects using database and PowerPoint designed by fifth graders are examples of technology-enhanced curriculum. Fourth graders work on their Navajo Newspapers by using their Navajo laptops, based on research and reading, They learn to use the scanner, to design the column layout of a newspaper and to use fonts and styles to enhance their writing. Fourth graders also create a database of the flora and fauna of the coastal regions of California, to be used on their annual overnight in Big Sur. Third grade learns about California geography through the use of the *Cross Country California* software,. Then, using the information from the software, using KidPix, they create their own maps of the state with products, major rivers and cities. Using previously learned Kidpix skills to create a picture and letter locations on the keyboard, first graders designed shoes for a favorite activity such as gardening, cooking, swimming, sleeping, dancing, flying, eating, playing, Second graders were given an Appleworks draw template with the letters of the alphabet and corresponding secret code pictures for each letter. Students made up a riddle or chose one from a joke book. They typed the riddle, resized the text, and checked punctuation. They duplicated the secret code pictures, and placed the encoded answer below the riddle. Students tried to solve each others secret code riddles. Second graders practiced typing and editing.

6th and 7th grades have integrated many digital literacy skills into their curriculum. These skills cover keyboarding, word processing, PowerPoint, Excel, Inspiration, Internet research, library databases, and citations. The Middle School librarian completes a library database series of lessons. All Middle School teachers keep their weeksheets updated on their websites. Technology-related Middle School Activities include yearbook, robotics, animation, 3D programming, webpage design, Flash animation, and digital music.

The Upper School offers technology courses and technology-dependent courses. The technology courses include Advanced Placement Computer Science A, Advanced Placement Computer Science AB, and Advanced Program Design. Upper School's

many technology-dependent courses include photography, video, newspaper, and yearbook. The software used in these classes includes Photoshop, Final Cut Pro, InDesign, and Illustrator. During Freshman Seminar, all freshmen go through six weeks of library technology skills with the librarians and two meetings with the technology director.

Courses that use computers with students on a regular basis include Geometry using Sketchpad, Statistics with Excel, Physics with Proeware, English with Word, History with library databases and Internet-based historical and curriculum materials. Teachers in most courses use technology regularly in their presentations, and almost all of the classrooms have LCD projectors.

Teacher-moderated forums are set up for specific courses such as Chemistry, Latin IV/V: Translations, French IV, History 12: Comparative Government, History 10, History 12: Ethics, AP Computer Science, Honors Chemistry, Physics 9, AP Biology, Debate I, English 9, English 11, Algebra II, Honors Geometry, Algebra I, and Statistics. These forums are used by teachers and students to further discussions, post questions, suggestions, and projects.

Teacher web sites have become reliable sources for students for instruction and assignments. These sites also give visitors insights into course syllabi and class structure. These web sites are mandatory in Middle School and highly encouraged in Upper School. While all Lower School teachers have a web site, most are updated only periodically. Again, these have grown organically but would be great as a unified communication tool for all of our teachers. Let us use the web to save trees!

Some of the most powerful technology-based curriculum innovations are coming soon. As soon as we become a laptop school, the seamless integration of technology will be within every teacher's grasp. A ubiquitous learning tool for all the students and teachers all of the time would provide a new dimension to our learning environment. We are looking forward to the creative technology-based curriculum that our teachers and students will develop.

### **III. SOFTWARE**

Ten years ago we recommended that all educational software be centralized for easy access to all. The educational software industry has changed drastically over the years. Most of our software has been standardized with the exception of lower school's curriculum-based software and a few specialty titles in the Middle and Upper Schools but even that is changing as newer operating systems do not run our old programs. Our standard productivity software include: Microsoft Office, Adobe Macromedia Dreamweaver Suite, InDesign Suite, and Inspiration. Division specific titles include: Apppleworks, Kidpix, Geometer's Sketchpad, and Final Cut.

Teachers are still encouraged to review and preview software, although most curriculum-based software for the upper grades have become web-based and at zero or little cost. The library subscribes to a very extensive and complete set of online databases which currently include: CQ Researcher, eLibrary, EBSCO Professional, InfoTrac, Newsbank Databases, Newsbank Science Source, Newsbank SF Chronicle, Proquest Magazine and Newspapers, Proquest NY Times Historical, Proquest Newspapers, SIRS Discoverer, and SIRS Researcher.

Productivity software and subscriptions will continue to be an ongoing cost. The largest increase will be the forthcoming student laptop program which will add 300-500 licenses of each of the software titles.

### **IV. STAFF DEVELOPMENT**

Although the faculty is committed to mastering the technology at HRS, they need training and continuous support. Purchasing new technologies without providing appropriate training is inefficient. Therefore, the committee proposes:

1. In-service days devoted to technology during the summer, back-to-school days in August, and during the school year.
2. Team learning models in which groups of faculty plan technology-integrated curriculum projects. As teams develop new projects they will identify staff development needs related to hardware and software utilized. The team will serve as a support group for newly acquired skills.
3. Technology department continuing to support faculty through individual tutoring and offering special workshops during the school year.
4. Required workshop for all teachers receiving laptops.

## **V. HARDWARE**

Our primary goal is to provide students and teachers with immediate and easy access to technology. With 300 computers, internet bandwidth exceeding 6 megabits per second, 34 LCD projectors, students have abundant access to technology. The entire campus has wireless access. For instructional use K-12, we have approximately:

- 280 IBM and Apple computers
  - 6 major Labs: Lower School (Mac), Middle School (IBM), Foreign Language (Windows), Upper School (2 IBM labs)
  - 9 mini labs: 4th grade, 5th grade, 6th grade, physics, 2D art, video/photo, Library
- 80 teacher laptops
- 8 Servers
- 20 laser printers
- 34 LCD presentation projectors

### **Recommendations**

1. Provide a laptop computer for every full time teacher to be replaced every four years.
2. Provide LCD projection units for every classroom.
3. Lab/Classroom computer replacement policy (5 year cycle)
4. Convert the Upper School to a one-to-one laptop program
5. Investigate converting the Middle School to a one-to-one laptop program

## **VI. ED TECH COMMITTEE**

This standing committee of the Head-Royce faculty will be comprised of the Lower School Computer Teacher, Middle and Upper School Technology Coordinators, the Technology Director, and a few additional teachers to help round out division and/or department representation. Its primary role is to promote the educational goals of Head-Royce through the integration of technology in all curriculum areas. The committee's second task is to assess and evaluate the uses of technology at Head-Royce.

The committee will shape staff development and technology users' support groups for the community.

The committee will review all Innovation Applications and make suggestions and recommendations to the applicant and the administrative council.

The committee will also make recommendations concerning the progress and direction of technological growth at Head-Royce. This group will shape the greater/overall plan.

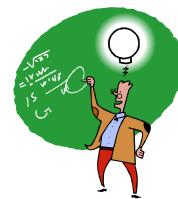
## **VII. INNOVATION APPLICATIONS**

(or, How to get people involved in curriculum-specific technology usage.)

Teachers will be able to apply for technology grants (hardware & software). All grants must include faculty and curriculum development. The Ed Tech Committee will review and prioritize all technology grants. The Tech Committee will assign mentors for each grant awarded.

### **Appendix:** Technology Innovation Grants (2006-07)

This is the thirteenth year that Head-Royce is offering teachers the opportunity to be innovative and/or improve teaching with technology. **This year, we are only offering funding for hardware and software.** We are referring any staff or curriculum development requests to the Professional Development Committee. The grant application will be read by the Ed Tech Committee ('05-06: Anissa Alston, Molly Barrett, Holly Below, Karen Bradley, Jo Howard, Jim Jones, Ray Louie, Marlene Sanders, Owen von Kugelgen). **Deadline is February 1, 2006.** The committee will review all applications, make suggestions to the grantee and submit recommendations to the administration for funding. Please submit your word processed application by email only to Ray Louie (rlouie@headroyce.org). Grant recipients will be notified by March 1, 2006.



**Grant Format:** Please include the following items in your grant proposal.

1. **Title:**
  - a. Project Title
  - b. Your name
  - c. subject and/or grade level
2. **Problem statement:** What problem do you hope to solve with the help of this grant?
3. **Objectives and Methodology:** What are your goals and how do you plan to achieve them?
4. **Evaluation:** How will you evaluate your success or failure?
5. **Follow-up:** How will you share the results of your work with the faculty and with the Ed Tech Committee?
6. **Budget:** How much will this cost? (Just estimates of hardware and/or software. If you need help with this, contact any member of the Tech Committee)

Once again we emphasize the integration of technology into the curriculum. We would like to encourage you to take technology and build a series of dynamite lessons. Middle and Upper School grants will be funded after July 1, 2006.

### **Past Technology Innovation Grants:**

- ⇒ Tablet PC's math
- ⇒ Math Type for Math Department
- ⇒ Music theory hardware and software
- ⇒ Classroom LCD projector
- ⇒ Create video and DVD's - classroom projects
- ⇒ Mini lab for Physics

With the growing use of **laptops** and the growth of our wireless network, we encourage grants that include the purchase of notebook computers for use by teachers. Such grant applications should include teacher technology goals for 3 years and it should be understood that continued use of the laptop is conditional on the annual review and meeting of those technology goals. The School will retain ownership of the computer. In many cases, the laptop will replace the classroom desktop computer. Priority for replacement laptops will be given based on laptop age (1<sup>st</sup> set was 2002).



## The History of Technology at Head-Royce School

We have better than average facilities and an adequate budget. The growth of support for the department is well illustrated by a brief history:

- 1981 Acquisition of MS/US computer lab with nine TRS-80 computers and one printer  
Programming unit taught to all students in math or science classes
- 1983 4/5 FTE computer coordinator hired  
Two Apple IIe's acquired for LS
- 1984 20 Apple IIe's purchased for separate use and LS labs
- 1985 New US/MS lab constructed  
FT coordinator plus 1/5 Pascal teacher hired  
Five IIe's added  
US LOGO and typing /word processing classes added
- 1986 Desktop publishing system set up (two Macintosh computers with laser printer)
- 1987 Lower school coordinator hired at 7/10 LS, 1/10 Activities, 2/10 US, with 3/5 MS/US department head and 2/5 programming teacher  
Introductory Pascal class added  
Nine IIe's added
- 1988 1 IIe, 2 IIgs added
- 1989 3 IIgs, 3 printers added
- 1990 2 IIgs, 3 Macs, 3 printers  
Apple IIe's integrated into science classes
- 1991 US lab 10 LC's
- 1992 10 Mac LC II;s purchased for LS lab, 1 from Safeway receipts  
Hand scanner and CD ROM for US  
1 Mac 610 to US lab
- 1993 MS lab created with 8 LC's  
9 Mac LC 520's w/CD ROM players - 5 for MS, 2 for US, 2 for LS  
2 Mac 610's with full page monitors for US Yearbook and Journalism  
Library computer system installed  
FT Technology Director hired to integrate instructional and administrative technologies  
Advanced Placement Computer Science course added  
MS activity for HyperCard/Typing offerings increase
- 1994 Unsuccessful MS lab is replaced with mobile Powerbook lab of 10  
MS lab is distributed. Lower School lab is reconfigured to 16 Mac LC's  
Faculty offered free Internet access through Oakland Unified agreement
- 1995 Direct 56kb frame relay **Internet** connection via OUSD  
Library system, LS lab, and US lab **networked** together and to the Internet  
12 PowerPC are added to classrooms according to internal requests (innovation grants)  
2 Internet servers along with 1 Appleshare file **server** for yearbook & library
- 1996 Every office and classroom is **wired**.  
12 more PowerPC's added.  
Lower School students switch from saving on floppies to file server  
Digital video workstation setup for US
- 1997 Macintosh Middle School Lab replaces worn Powerbooks  
12 more PowerPC's added.  
Second instructional file server added and dedicated to library
- 1998 Remodeled **Middle School Lab** with 17 IBM pentium workstations  
New "state of the art" **Foreign Language Lab** with 18 pentium workstations  
**Upper School Lab** remodeled and expanded into 2 labs: 18 Macs & 15 ZapMe! pentiums  
16 iMacs added to lower school  
Second digital video workstation installed  
24 iMac DV added to every LS classroom and hooked up to TV monitor  
middle school classroom has a computer & wired and hooked up to TV monitor  
HRS Card Catalog accessible via Internet  
New Internet connection installed through Covad at 1.5 DSL

- 1999 18 IBM pentium added to every MS classroom and hooked up to TV monitor  
8 iMacs US lab  
LCD projection unit installed in Library  
50% of Network upgraded to 100bt  
Server G3 tower  
\*Total of 270 workstations in offices, labs, classrooms, and workrooms
- 2000 12 iMacs for LS classrooms  
6 IBM GL300 for 6<sup>th</sup> grade and multipurpose room  
2 LCD projectors (ms science & us lab)  
2 teacher laptops (English & History)  
3 G4 towers for video production  
5 IBM NetVistas for library  
US lab B upgraded with 18 IBM from (Gorud/Howland)  
7 us iMacs
- 2001 18 AlphaSmarts  
6 LCD projectors mostly on carts  
G4 server  
20 IBM NetVistas to classes and workroom
- 2002 Wireless Airports  
8 ibooks  
8 iMac LS  
2 xServes – instruction and mail/web  
4 LCD projectors  
?? IBM
- 2003 LS lab upgraded to 20 eMacs  
US lab A upgraded with 18 IBM  
Foreign Language Lab hardware upgrade  
21 teachers receive laptops  
Video adds G5 tower  
4 LCD projectors
- 2004 Foreign Language Lab software upgrade  
15 teachers receive laptops  
Video adds 2 G5 tower  
5 LCD projectors
- 2005 4 Cisco Aironets  
LS lab upgraded to 20 Mac Mini's  
23 teachers receive laptops  
Video adds 2 G5 tower  
5 LCD projectors  
12 IBM with LCD's for library

Grand Totals 300 computers instructional including 80 teacher laptops; 35 LCD projectors; 100 mini labs.....

# Technology Department Organizational Chart

(September 2005)

