

Computer Literacy 2 Project Selection Catalog

Each group must choose one of the following projects for the Computer Literacy 2 class, then prepare a written plan in consultation with one of the teachers for exactly what you hope to accomplish, with a week-by-week schedule of how you will do it, and measurable milestones so we can evaluate your progress.

1. Create three two-minute video “book trailers.” These are like movie trailers. They entice viewers to read the book by showing a “clip” of the story or a collection of scenes and effects that give a flavor of the book. See some good examples of this at <http://www.library.pima.gov/teenzone/trailers> or <http://teacherlibrarian.ning.com/video/video/show?id=672799:Video:57164>.
2. Have a big manga collection at home? Are you a compulsive reader? Catalog and share your book collection using Library Thing (<http://www.librarything.com>), which imports data and images from Amazon. Write reviews, import your own cover images, tag your entries by subject and genre, find out who else reads what you read, and develop a to-read list based on what you’ve found. You can also do this with your CD collection. See what was done with the Uni High Library graphic novel collection by a former CL2 group at <http://unihighlibrary.librarything.com/catalog/unihighlibrary>.
3. Create a 5-minute instructional video which teaches people to
4. Develop a marketing campaign for a current candidate for U.S. President. Create a two-minute video, a 60 second radio spot, two press releases, a bumper sticker design, and a T-shirt design.
5. Develop a marketing campaign that either supports or does not support a state referendum to ban the use of social networking software in schools and libraries. Create a two-minute video, a 30 second radio, two press releases, a bumper sticker design, and a T-shirt design.
6. Write a critique of the social networking phenomenon. First, describe it, including services like blogging, MySpace and Facebook, tagging (del.icio.us, Technorati, etc.), YouTube, Flickr and other photo sharing sites, etc. Second, analyze its impact on contemporary life, particularly on youth culture. Third, predict the near future of social networking. How might it change? Will it last?
7. Create a wiki for the freshman class. At a minimum, it should include a guide to teachers, homework tips, athletic options, club list, useful productivity widgets, and instructions for editing.
8. Assist the Development department (Karen Cooley) in designing an Alumni Reunion packet of information and procedures to use when preparing for alums to return to the school.
9. Build a Uni alumni web site with the histories of each class, information on what alumni are doing now, and pictures, class records and other information from the yearbook and other resources about each graduating class. This should be driven from an underlying database so it can be easily updated in the future.
10. Create a social network on Ning (<http://www.ning.com>) for Uni alumni. See examples at <http://www.gcrru.com/>, <http://tjyellowjackets.ning.com/>, and <http://jfkougars.ning.com/>. It should include a guest book with a Google map and other interactive features. Seed it with blog entries, photos, videos, forum entries, and mock groups and events. Present a plan for implementation to Karen Cooley, alumni director.
11. Produce a video that, in five minutes or less, instructs Uni students and teachers in the essentials of CPR (Cardio-Pulmonary Resuscitation), or illustrates how to operate the automatic cardiac defibrillators installed at Uni and in Kenney Gym.

12. Design and build a robot that can perform an action like playing ping-pong or travel along a line marked on the floor. Develop the drawings, circuit descriptions and other documentation that would allow someone else to duplicate your design.
13. Create instructional materials that will help students learn how to connect to Uni High's servers from their home computers. At the very least, a web page, a written guide, a "quick start" reference (probably in the form of a small laminated card users can carry with them) will be necessary. The procedures must be technically accurate, simply and clearly explained, well illustrated, and work on both Windows and Macintosh computers.
14. Create a web-based version of a traditional story (or stories) with multiple hyperlinks glossing vocabulary, expressions, references, etc. Links can be visual, verbal, or both, but should be original and specific. If possible, this would be an excellent project for a group sharing a common language study (i.e., the story would be useful for a language class reading on an elementary level).
15. Become webmasters for a community organization needing serious help with updating, upgrading and maintaining an informational website. (The Early American Museum of the Champaign County Forest Preserve District is one organization that comes to mind. Other options might be your church, Scouting organization, Humane Society, historical preservation agencies, local arts or theatre groups, etc.)
16. Build a database of musical genres, performers, and songs (this should eventually be a very substantial project), including especially tags classifying these in such a way as to be able to link similar songs, performers, musical styles, etc., automatically. The Pandora Project radio would be a good example to follow.
17. Create a web site to support buying and selling used textbooks among Uni students. It will need to have a way for buyers and sellers to register themselves as users, for sellers to list their books (and the prices), and for buyers to search for the books they want and commit to a sale. The *design* of this system (on paper, or using mock-ups of screen designs created with a graphics program) is probably more important than the actual *implementation*, and should take the majority of your time.
18. Create a functional statistics program so that Mr. Garvey can easily input results of the East Central Illinois Chess League match results, calculate scores for all players, and post results on the League web page. Or, design a computer program that can be used to maintain rosters and statistics for the Uni Cross Country program. If possible, make this accessible through a Web-based interface. The combination of the PHP language and MySQL database server is powerful for creating these kinds of web-based projects.
19. Create a visual history of Uni High, using still images from archived sources (yearbooks, etc) thematically and historically arranged, in the manner of Ken Burns' documentaries. The problem might be writing and recording the material, but it could be a good final result if done well.
20. Write a paper describing, in detail, how the Kerberos security protocol used widely at UIUC works. It will need copious illustrations. The project should also include a PowerPoint presentation to describe your work to others. Make sure you demonstrate a **deep** understanding of the topic.
21. Re-create a classic early video game like Pong, Frogger or Pac-Man in the Java programming language.
22. Use the *Squeak* programming language to build a computer model of a dynamic system like a roller coaster, a rocket in flight, or some other physical object in motion.
23. Similar to the previous, but use the *Mathematica* computer mathematics system and language instead of *Squeak*.

24. Create a 30-minute audio podcast with weekly news from Uni High. **Serious** content and high journalistic standards will be expected.
25. Program a microcomputer in assembly language to control a robot, simulate the rolling of a pair of dice, or another similar task.
26. Write a program in *PHP*, *C++* or another high-level language that takes students' requests for classes and automatically builds the best possible master schedule for an 8-period day. Warning – this is a complicated and time-consuming project!
27. Compose and record a piece of music using a combination of synthesized and live instruments. Write a paper describing what you did. Make sure Mr. Murphy reviews and approves of your composition before you record it.
28. Modify an existing open-source program written in the *C* or *C++* language to incorporate additional features you would like. This is a fairly open-ended idea, so your specific proposal must be approved by Mr. Smith before you begin.
29. Using a drawing or drafting program, re-design a classic board game to incorporate Uni High elements and themes. Produce a game board, game pieces, instructions and any other printed or graphical material required. A program like CorelDRAW, Adobe Illustrator or Google SketchUp will be most useful for this purpose.
30. Create an online, playable version of a classic board game accessible through a Web-based interface.
31. Design some “widgets” (small applications that run in the background and perform specific, small tasks) for either the MacOS or the Yahoo Widget Engine.
32. Write a paper discussing the recent history of microprocessor development. Include technologies such as 64-bit processors and the Intel Core and Atom design projects. It should have plenty of illustrations so you can explain this topic to a mostly non-technical audience. Discuss where CPU design is likely to go in the next generation or two.
33. The computers in the Windows lab are named after prominent composers. Configure these machines so that each one plays a short excerpt of that composer's work when a user logs on. This will require selecting an appropriate piece of music for each one, then finding a recording of that music (or recording your own) and finally, designing a computer script so that each machine plays the appropriate file, based on its name. Mr. Murphy insists that these need to be live recordings with real instruments – not synthesized.
34. Using information downloadable from the Web, analyze the variability of a star or the distribution of sunspots on the sun over a period of years. Like any scientific paper, you should propose a hypothesis about the phenomenon you are studying and then use the available astronomical observations to confirm or refute that hypothesis.
35. Develop a program that uses historical information about stock prices downloaded from the Web to predict future prices and help you make investment decisions. Starting with \$1000 to invest in the market, use your program's recommendations to see how much your portfolio is worth after a year of simulated investing.
36. Calculate Uni High's “carbon footprint” using data available from the Web and your own careful measurements and estimates of energy consumption.
37. Choose a classic film that incorporates themes of computer and communications technology. (The teachers can make some suggestions if you need ideas.) Critique the presentation of technology in the film and describe how actual advances in computing have paralleled or deviated from the vision presented in the movie. Your final product may be a copiously illustrated paper, a video, or an interactive website.

38. Using Google Earth or a similar service, create a world map showing where Uni High alumni are living. Allow the user to zoom in to any reasonable level of detail, or out to show the entire distribution of alums. Enhancements would include the ability to select subjects by year of graduation, or show the movements of a particular graduating class over time.
39. Help Mr. Stone create a portfolio of graphics (exploded views, virtual dissections, etc.) useful for his Biology classes. A drawing or illustration program like CorelDRAW, Adobe Illustrator, or Google SketchUp would be most useful for this.
40. Create a course wiki for a teacher. It should have pages for the syllabus, assignments, class resources (including news feeds), and student work. See an example at <http://armstrong-history.wikispaces.com/>.
41. Create a wiki instructional guide for teachers on using Web 2.0 technology in the classroom. At a minimum, include the following tools: RSS, blogs, wikis, podcasts, microblogging, photo and video sharing, social bookmarking, and social networking. See this site for inspiration: <http://newtoolsworkshop.wikispaces.com>.
42. Choose a classic film that is set in a particular city (we can make some suggestions if you don't have your own ideas). Using Google Maps or a similar service, create a map with interactive links to locations shown in that film. Annotate your entries to discuss the history and significance of each location and describe how it was portrayed in the film.
43. Similar to the previous project, create an interactive map of the area around Uni High. Include all the attractions that might be important to Uni students.
44. Design a system that allows users to log on to the computers in the Windows and Macintosh labs using a biometric identification scheme like fingerprints, retinal scans, etc. instead of requiring everyone to remember a password. You will need to identify an appropriate inexpensive, reliable and durable scanning device, build a database of users' biometric data, and integrate this with the operating systems' logon mechanisms.
45. Using a Global Positioning System (GPS) receiver, design a system that will record your movements over the course of a day and plot them on a map. How many miles do you travel in a day?
46. Work with Mr. Garvey to update and expand the Agora Days web site that allows users to propose classes and sign up for a class schedule. This could turn into a multi-year commitment to be the primary maintainer of the Agora system, and will require close cooperation with Mr. Garvey and Mr. Smith.
47. Propose your own project, similar in scope and detail to the ones already described here. But you'll need to "sell" it to the teachers – and we're in the mood to be tough!