

Green Economics

Planning Environmentally Friendly Businesses

| Tools | |
|--|---|
| <i>Kit software:</i> Inspiration; mPOWER; The Writing Trek; TimeLiner; World Book Encyclopedia | <i>Other:</i> Computers; a digital camcorder; the Internet; AppleWorks; EdView; iMovie; a Web page editor such as Netscape Composer |

Project Duration

Nine to eleven class sessions

Introduction

Many new businesses arrive at innovative ideas and products in response to threats to the environment. The development of such businesses, whether they provide curbside recycling in a town or rainforest-grown products to the whole world, calls for vision, analytical skill, and effective and inspirational communication. How can planning a “green” business engage students in the use of a wide range of skills in real-world contexts? What can they learn from close collaboration on the complementary and interrelated tasks that are required by such a project?

Project Overview

In this project, students work in groups to plan the development of an enterprise that combines sound business practices with protection or enhancement of the environment. Groups create business plans and marketing materials, and then present their plans in an effort to persuade their classmates to invest venture-capital “greenbacks” in their ideas.

Phase 1: Mixing green dreams and greenbacks

With the whole class, discuss various threats to the environment, classifying these as local, regional, and global. Then introduce the idea of “green” businesses: enterprises with products or processes that have real market value, but that also conserve resources, reduce pollution, or improve the environment in other ways.

In groups of four, students use World Book Encyclopedia and the Internet (using EdView) to research global warming, toxic waste, air pollution, or other issues identified in the initial discussion. Then, each group uses Inspiration to organize the results of its research, arranging problems, solutions, and interesting facts to reveal ideas and opportunities that can be creatively exploited by a green business start-up. Each group uses AppleWorks to write a brief description of the business idea on which they settle, including the ways that it will contribute to improving the environment.

Phase 2: Planning to change the world

The whole class begins by reviewing the standard elements of a business plan (see the Facilitation Tips for Phase 2). With business plans in mind, groups then continue their research, collecting information about the technologies and processes that may be important to their prospective businesses, and about the market sectors in which their businesses will compete.

Each group, with members taking on different roles, uses the AppleWorks “Business Plan Template” to draft the four initial sections of its business plan. The Chief Executive Officer writes the Business Competency section; the Chief Financial Officer (using an AppleWorks spreadsheet document) works on the Prospective Financials; the Vice President of Marketing drafts the Marketing Analysis section; and the Vice President of Operations (using TimeLiner) creates the Implementation Timeline. (See the “Business Plan Template” on the kit Web site.)

When these sections are drafted, each group is paired with another group for an initial plan-review session, in which the assumptions and research underpinning each group’s plan are questioned and refined. Groups then finalize their first four business plan sections, write the four secondary sections (Organization Chart, Operating Budget, Marketing Strategy, and Key Risks), write Executive Summaries, and create tables of contents.

Phase 3: Creating marketing materials

When the business plans are complete, groups explore the Advertising project in the Design Studio of The Writing Trek to learn about effective advertising.

Groups then use their new knowledge to create their initial marketing materials. After collectively designing a company logo using the AppleWorks drawing tools, each member assumes responsibility for one of the following marketing elements: a Web page (created with Netscape Composer or another Web page editor), a printed brochure or magazine ad (created with AppleWorks), a radio advertisement (created with mPOWER), and a TV ad (created with a digital camcorder and iMovie).

Phase 4: Making the pitch

Groups use mPOWER to prepare ten-minute presentations for potential investors. Each presentation covers Business Concept (Business Competency section of the business plan), Technical Innovations and Considerations (Implementation Timeline), Marketing Strategy, and Financial Projections.

Groups pitch their businesses to the whole class, with students in the class acting as potential investors, each with \$100,000 to allocate to the various start-ups. At the completion of the presentations, student investors list the choices that they have made on slips of paper and give these to the teacher, who calculates the total investment that each start-up has garnered using the “Investment Allocation Spreadsheet.” (See the “Investment Allocation Spreadsheet” on the kit Web site.) Which group has attracted enough funding to meet or exceed its initial requirements?

Technical and Facilitation Tips

Facilitation Tips: Phase 1

- In the initial discussion, you can ask questions such as the following:
 - Which environmental problems are the most significant? Why?
 - How do businesses and industries currently contribute to each problem?
 - On which environmental problems can consumers have the greatest impact?
 - What are some “green businesses” that you know about?
- Before students begin their research on environmental problems, you may want to suggest that they explore the Web sites of different green businesses, again identifying these as primarily local, regional, or global in their focus. How do these businesses turn environmental threats into business opportunities? What symbols, images, and phrases do they use to increase the visibility of their products and businesses?
- While groups are brainstorming their business ideas, the following questions may help them focus:
 - What are the chief causes of each problem you’ve researched?
 - How might the situation be improved by changes in people’s behavior, the invention of new technologies, or other means?
 - How could such an improvement result in a product?
- The technical or industrial underpinnings of the proposed businesses are far less important than the students’ understanding of human nature and business planning. Decide in advance whether you want to emphasize the development of extremely feasible, real-world solutions, or whether you would prefer to allow students more imaginative leeway. In both cases, successful projects will be those that are based on creative ways to motivate consumers to participate in the solution.
- Remind students during their research to keep track of where they find media elements and textual information, so that they can return to these locations for more research and so they can properly cite their sources.
- In this phase, meet with each group to review its initial business description. If groups are stumped, you may want to encourage them to return to one or more of the environmental threats they have researched, listing every solution or partial solution they can think of, no matter how far out or futuristic. How can they motivate consumers or other businesses to participate in these solutions?
- This phase will take approximately two class sessions.

Tech Tips: Phase 1

- World Book Encyclopedia contains many examples of environmental threats. Topics include Conservation, Endangered Species, Gaia, Green Party, Recycling, Wetland, and Wildlife Conservation. Articles include Acid Rain, Environmental Pollution, Greenhouse Effect, and Waste Disposal.
- See the Resources section for relevant Internet sites, including references for existing green businesses.
- Groups may want to select an Inspiration Thinking template to use in organizing their thoughts. These templates suggest various relations between ideas, with primary ideas supported by branching arrays of secondary ideas. In Inspiration, choose Template from the File menu and then scroll through the list to select and open an appropriate Thinking template.

Facilitation Tips: Phase 2

- The standard elements of a business plan include the following: Table of Contents, Executive Summary, Business Competency, Prospective Financials, Market Analysis, Implementation Timeline, Organization Chart, Operating Budget, Marketing Strategy, and Key Risks. For more detail about the content of each element, see the “Business Plan Template.” For examples of real business plans, visit some of the Web sites listed in the Resources section.
- Students can collaborate on the development of all aspects of their business plans. However, in each group students should assume specific roles, and areas of expertise, with each student responsible for an appropriate section of the business plan, as shown in the table below.

| Role | Initial Section | Tools | Secondary Section | Tools |
|----------------|-------------------------|--|--------------------------|---|
| CEO | Business Competency | AppleWorks: Word Processing | Organization Chart | Inspiration |
| CFO | Prospective Financials | AppleWorks: Spreadsheet | Operating Budget | AppleWorks: Spreadsheet |
| VP, Marketing | Market Analysis | EdView/Internet; AppleWorks: Word Processing | Marketing Strategy | AppleWorks: Word Processing & Drawing |
| VP, Operations | Implementation Timeline | TimeLiner | Key Risks | AppleWorks: Word Processing |

- The roles suggested for the groups are designed to ensure that each member of the group has a distinct, and fully engaging, area of responsibility. The Chief Executive Officer is responsible for articulating the vision of the company, including its focus and expertise, and for combining the work of the members of the group to create a practical, profitable, and fundable overall plan. The Chief Financial Officer determines the costs of starting the company, creates an annual budget, predicts income, forecasts sales, and determines pricing. The Vice President of Marketing analyzes both prospective customers and the competition, and plans how to reach out to one and out-perform the other. The Vice President of Operations addresses the ways that the business will actually function, including how it will develop its product, and how it will manufacture and deliver it.
- The Organization Chart should include upper-level management in the company (namely, each student in the group), and one additional layer of employees.
- When groups meet together for their plan-review sessions, they can focus on ensuring that the initial materials are clear and conceptually strong. Groups can also share creative responses and enhancements to each other's proposals. (Take care to ensure that groups aren't paired with potential competitors!)
- The Operating Budget should include costs of manufacturing the company's product, or providing its service; costs of marketing and advertising; and costs of management and other personnel.
- The Marketing Strategy section should be based on the Market Analysis section, and on an understanding of the company's target market and target customer. For example: perhaps many consumers in this market will be members of the Nature Conservancy, or of a local community group, so those facts will influence an ad campaign.
- The Key Risks section of the business plan should focus on particular points in the process of building the business in which the new company will be vulnerable, potentially, to change. For example, an automobile co-operative (like the one in Portland, Oregon) might find itself dependent on completion of a major public transportation project to increase the number of people who don't need to use a car every day. If the project is delayed, members might be influenced to leave the co-op and buy their own cars. In another example, a U.S. company making candy out of a particular root or nut grown at the headwaters of the Amazon might have its supply cut off by political upheaval in that region.
- To create the Executive Summary, students in a group can each write single paragraphs summarizing elements of the business plan developed by other members of their team. These paragraphs can then be assembled and edited to create a one-page summary.
- This phase will occupy three to four class sessions, and will benefit from meetings of students outside of class (at home or in the library/media center) to refine their ideas and complete their business plan sections.

Tech Tips: Phase 2

- There are many examples of business plans available on the Internet. See the Resources section for suggestions.
- The Vice President of Marketing can conduct effective competitive and market research using the Internet. The Internet will be particularly useful in locating potential competitors.

- The CEO can use Inspiration’s Thinking—Tree Diagram template to complete the organization chart for the proposed enterprise. Choose Template from the File menu, then scroll through the list to find and open the Thinking—Tree Diagram template.
- The Organization Chart created in Inspiration can be exported as a graphic and then inserted into the business plan document:
 - 1 In Inspiration, choose Export from the File menu.
 - 2 Select the type of graphic, either PICT or JPEG. Click Save.
 - 3 Give the file a name and select a location in which to save it, then click Save. The file can now be inserted into the business plan document.
- The Implementation Timeline created in TimeLiner can be saved as a one-page graphic that can then be inserted into the business plan document in AppleWorks:
 - 1 In TimeLiner, choose the appropriate view, making sure the timeline occupies only one page.
 - 2 Choose “Export __ View as Graphic” from the File menu and then choose either “Save as Macintosh PICT” or “Save as JPEG file” from the submenu.
 - 3 Give the file a name, select a location in which to save it, and then click Save. (If saving as a JPEG file, you will also have to specify JPEG options, or leave them at their default settings.) The file can now be inserted into the business plan document.
- To insert the exported Inspiration Organization Chart and the exported TimeLiner Implementation Timeline into the AppleWorks business plan, follow these steps:
 - 1 Open the business plan in AppleWorks.
 - 2 Click to place the insertion point where the file should be inserted.
 - 3 Choose Insert from the File menu.
 - 4 Navigate to the folder in which the exported file was saved. Make sure the File Format pop-up menu is set to All Available.
 - 5 Select the file to be inserted and click Insert.

Facilitation Tips: Phase 3

- After a group finishes reviewing the Advertising project in the Design Studio, it can hold a brainstorming session to come up with concepts on which to base the design of the company logo and the marketing materials. During this session, a group can create a list of the product’s attributes, list words that describe the product’s image, and list objects, images, colors, and other visual elements that connote that image.
- Students may want to use the AppleWorks Brochure template as a model or as a template for the brochure. (To open this template, choose Show Starting Points from the File menu, click the Templates tab, scroll through the window to locate the Brochure template, and click the Brochure icon.)
- You may want to encourage groups to explore the Concepts section in the Design Studio in The Writing Trek, which introduces ideas such as Project, Composition, Choices, Color, Media, and Scale.

- If a digital camcorder is not available, you can replace the TV ad with a set of printed materials that includes business cards, letterhead, and a brochure. All these materials can be created from AppleWorks templates.
- This phase may be completed in two to three class sessions.

Tech Tips: Phase 3

- The Advertising project in The Writing Trek introduces students to the persuasive techniques used in effective advertising: they read and respond to print advertisements, discover the principles of effective advertising (“Advertising Secrets”), and choose text and images to create compelling ads. The On Your Own section features guidelines that students can follow in AppleWorks as they build their advertisements and other “marketing collateral.”
- For help using iMovie, students can visit the “Desktop Movies in Education” Web site.
- The Web Design project in the Design Studio of The Writing Trek, which introduces students to the key concepts of Web design, can be very helpful to students working on creating the Web sites for the business.
- mPOWER’s sound-recording capability can be used to create the radio advertisements. An internal or external microphone is required. To record sounds with mPOWER:
 - 1 From the mPOWER menu, choose Preferences, and then choose Components.
 - 2 Select one of the no port items in the Port box, select Generic Audio in the Supported Components box, and click the Add button under this box.
 - 3 Select Generic Audio in the Attached Components box. Below this box, in Component Settings, click the Sound button, then choose Source from the pop-up menu and choose the external or built-in microphone.
 - 4 Click OK and then Configure. Return to mPOWER.
 - 5 Open a presentation (a one-slide presentation can be created for this purpose). From the Slide Menu, choose Audio.
 - 6 Choose Add New Audio, select the microphone source, and click OK.
 - 7 Click the Start Recording button to start recording, then press the Escape key or click the mouse button to stop recording.
 - 8 Choose a method of saving the audio file and click OK. If you save the sound on a disk, a file is created that can then be used in any presentation.

Facilitation Tips: Phase 4

- It is advisable for groups to meet again with their plan-review partners (see Phase 2) to run through their presentations one or more times before giving them to the class.
- During the presentation, each group member should present information on his or her area of responsibility (CEO, CFO, Marketing, Operations).
- Groups should make every effort to convince investors that their business model is a viable one *and* that it will make a significant difference to the environment.

- On slides in their mPOWER presentations, groups can include the following marketing materials created in Phase 3:
 - links to the Web pages
 - desktop movies (TV ads)
 - radio ads
- As part of their presentations, groups can pass out examples of their printed marketing materials or display them on a poster board in the classroom.
- Student “investors” should take notes on the presentations, as they will be asked to compare the different business models. They must also decide on what combination of business viability and environmental benefit to base their investments.
- This phase will occupy at least two class sessions.

Tech Tips: Phase 4

- Groups can use mPOWER clip art, World Book Encyclopedia, and the Internet to find images that will give their presentations a professional look.
- The TV ad can be added to an mPOWER slide in the presentation by using the Video button in the Slide menu; the radio ad can be added to a slide by using the Audio button.
- Links to Web pages are included on mPOWER slides as Hot Buttons. From the Slide Menu, click Hot Buttons and then Add New Hot Button. Select the Open A WWW Site button type and click OK.

Outcomes

After completing this project, students will be able to:

- develop elements in a standard business plan
- relate business models to ideas of cost, revenue, target market, and competitive advantage
- describe the major roles and functions in a business
- demonstrate increased awareness of the relationship between products and markets
- create a variety of marketing materials for a business, including a print ad, a radio ad, and a Web page

In addition, students will have

- improved their abilities to work in groups and contribute to a common goal
- gained experience using business math and math tools in real-world circumstances
- improved their abilities to combine writing, speaking, graphic arts, and other media to persuade others
- practiced writing to communicate concepts and information
- learned skills or acquired knowledge relating to each of the state and national standards referred to in the Project Standards section

Project Standards

From the Secondary Language Arts & Social Studies Web site, you can identify select state curriculum standards and national educational technology standards that correlate to this student project. To locate these standards, go to the kit Web site and click the Curriculum button. Locate and open this student project and click the “Project Standards” button.

Assessment Suggestions

- To assess the business plans completed in Phase 2, apply a rubric based on criteria such as the following: conceptual clarity of written sections; connection of income strategy and environmental action; quality and thoroughness of research; distinctive visual design; spreadsheet structure (field names, equations, and so on); clarity of presentation.
- In Phase 4, have students peer-assess each group’s presentations, using a set of teacher-written questions or student-created rubrics.

Preparation

- Review and print any of the Step-by-Step Cards that your students will find useful during this project.
- Review the Internet resources relevant to this project to find good examples of business plans and tips for creating them.

Resources

Internet

Brief Overview of Business Plan

[http://www.us.deloitte.com/growth/guidebooks/busplan.htm#Executive Summary](http://www.us.deloitte.com/growth/guidebooks/busplan.htm#Executive%20Summary)

Bulletproof Business Plans

http://www.bulletproofbizplans.com/bpsample/Sample_Plan/sample_plan.html

Business Opportunities for Green Business

<http://www.sustainablebusiness.com/busopps/CAP.cfm#three>

Business Plan Writing in More Depth

<http://www.sba.gov/startup/indexbusplans.html>

Desktop Movies in Education

<http://www.apple.com/education/dv/>

EdView

<http://edview.apple.com>

Garage.com—Tools for Entrepreneurs

<http://garage.com/resources/websites.shtml>

Green Pages Online

<http://www.coopamerica.org/gp/>

Idea Lab (Business Ideas)

<http://www.idealab.com>

Inc. Magazine

<http://www.inc.com>

New Deal Software, Inc.

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

Small Business Administration and Office of Entrepreneurial Development

<http://www.sba.gov/ed/>

Writing a Business Plan With Help From Inc.com

http://www.inc.com/guide/item/0,,CHL1_GDE66,00.html

Books

Cryptonomicon by Neal Stephenson (Avon Books, 1999; has a funny, insightful mock business plan).

Step-by-Step Cards

- Adding a Graphic to a Composer Web Page
- Creating Tables With AppleWorks 6
- Getting Started With Inspiration
- Making a Presentation With mPOWER
- Searching the Internet With EdView
- Searching World Book Encyclopedia 2001
- TimeLiner Basics
- Using Netscape Composer
- Using the Drawing Tools in AppleWorks 6
- Working With Spreadsheets in AppleWorks 6
- Working With TimeLiner Timelines

Templates

- Business Plan Template
- Investment Allocation Spreadsheet

Additional Resources

- Organizing Information With Inspiration

Prerequisite Skills

To complete this project successfully, students should be able to do the following:

- search for information on the Internet related to particular topics (see the Step-by-Step Card “Searching the Internet With EdView”)
- locate information in World Book Encyclopedia (see the Step-by-Step Card “Searching World Book Encyclopedia 2001”)
- make a timeline in TimeLiner (see the Step-by-Step Cards “TimeLiner Basics” and “Working With TimeLiner Timelines”)
- create simple concept maps with Inspiration, and work with Inspiration templates (see the Step-by-Step Card “Getting Started With Inspiration”)
- use AppleWorks to create and edit basic word-processing, spreadsheet, and drawing documents (see the Step-by-Step Cards “Working With Spreadsheets in AppleWorks 6,” “Using the Drawing Tools in AppleWorks 6,” and “Creating Tables With AppleWorks 6”)
- create Web pages using Netscape Composer (see the Step-by-Step Cards “Using Netscape Composer” and “Adding a Graphic to a Composer Web Page”)
- create a multimedia presentation using mPOWER (see the Step-by-Step Card “Making a Presentation With mPOWER”)
- use a digital camcorder and iMovie to make a desktop movie (see the “Desktop Movies in Education” Web site)

Background Information

Here is some information you may find useful as you plan how to implement this project or introduce it to your students.

- In Phase 1, the class discusses local, regional, and international threats to the environment. These boundaries overlap, of course. Air pollution from the Los Angeles area makes its way across the Mojave Desert and all the way to Colorado. Power-generating dams on the Columbia River inhibit salmon spawning, reducing salmon populations in the Pacific Ocean. When environmental threats appear to straddle boundaries, or when threats such as overpopulation and water shortages appear interrelated, invite the class to consider these linkages and crossovers. When, if ever, is an environmental problem best seen in isolation? When is it best to see the big picture? How might a green start-up business advantageously address the interrelatedness of the environment and environmental threats in its planning processes? Or in its marketing strategy?

- Green businesses may enjoy many competitive advantages over other enterprises in the same market. Many people prefer to buy products that they know are beneficial to the environment. Through effective marketing, therefore, a green business may be able to set the higher prices needed to cover more costly manufacturing processes. At the same time, the green business may be able to reduce its marketing costs by specifically targeting “green” consumers. Some green businesses, such as computer recyclers, face very limited competition, while others, such as refiners of soy-based fuel substitutes, can market their products as reducing immediate health hazards for consumers, conserving fossil fuels, and reducing “greenhouse” emissions that contribute to global warming.

Options and Extension Activities

Options

- Invite a local entrepreneur to address the class about the reasons for success and failure in business. If possible, invite someone whose business has ties to recycling, alternative energy, the use of organic growing techniques or native plants, or other green enterprises.

Extension Activities

- Early in the planning process, groups can visit local nonprofit environmental organizations, or chapters of national organizations. Staff in these organizations will have specific ideas and will know of existing models. They will also help students get excited about their environmental responsibilities as entrepreneurs.
- Students in economics classes can extend their research by investigating the indirect costs of an industry’s effect on the environment.
- Students in business classes can interview small business owners who confront significant environmental regulation, to learn about the effect of regulations and incentives on their business practices and costs. Such enterprises might include service stations and automobile repair shops, boatyards and marinas, contractors, and farmers.

The Home-School Connection

- During Phase 1, students can look for “green” products that appear in their homes. What are the companies like that offer these products: are they big? Small? Local? International? Why are the products considered “green” or environmentally friendly? What competing products exist? How are these products marketed? Students can also interview family members to determine why these products are bought in lieu of competing products.
- Students can invite family members to watch the Phase 4 presentations in class.

This Project as a Model

This project can be repeated in other business-related areas of current interest. Students could, for example, focus on researching and developing e-commerce or other Internet-focused businesses.

Alternatively, students could focus on the nonprofit sector, both within the U.S. and internationally, researching grassroots organizations in countries of interest to them, identifying sources of funding, and proposing projects. Such projects might range from connecting Palestinian and Israeli teenagers via the Internet, to planting trees in urban areas, to monitoring the rights and safety of political prisoners.