

# Project-Based Learning: An Overview

prepared for the teachers and administrators of  
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The most recent version of this document is available at  
<https://github.com/jlhdoyle/pbl-overview>

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## Purpose of This Document

The purpose of this document is to provide an overview of the collection of teaching strategies known as “project-based learning,” hereafter PBL. It is intended to answer the following questions:

- What is PBL?
- Would PBL be useful for meeting my goals in the classroom?
- How have other people used PBL?
- Where can I get more information about PBL?

The two primary sources for this overview are *PBL in the Elementary Grades: Step-by-Step Guidance, Tools and Tips for Standards-Focused K-5 Projects*, by Sara Hallermann, John Larmer, and John R. Mergendoller (Buck Institute for Education, 2011) and *Work That Matters: A Teacher’s Guide to Project-Based Learning*, by Alan Patton (Paul Hamlyn Foundation, 2012). A list of other resources available, mostly free and online, begins on Page 8.

# What Is Project-Based Learning?

Project-based learning, most simply defined, is: the use of a specific, actionable project, with tangible and presentable results, as a learning tool. It can be used to complement, or replace, traditional instructional methods. Depending on the nature of the project, it is frequently multidisciplinary: a single project might involve reading comprehension, mathematical calculation and graphing, writing, and visual presentation.

By the most common definition of PBL, a project includes:

- **A structured beginning, middle, and end.** The project begins with a particular task to take on or problem to solve, and ends with the students' presenting some tangible material to complete the task or solve the problem.
- **Some sort of real-world grounding.** For example, instead of doing a more general project on plant growth, the students could research planting options for the school's garden and analyze the soil composition.
- **A significant commitment of time.** Most projects take between two and four weeks to complete; some run longer.
- **A certain amount of student choice.** Part of the learning process is for the students to come up with a way to answer the question or satisfy the requirements.
- **Group work.** This can vary; students may have individual responsibilities which are all combined in the final project, or may be separated into small teams from the very beginning.
- **A review-reflect-revise cycle.** At various points in the project, students receive feedback on the work they've done so far, and get an opportunity to revise their work based on that feedback. The feedback may come from the teacher alone, from other students in the student's group, the whole class, or a combination, depending on the task.
- **A final presentation to an outside audience.** This could be the rest of the school, parents, or an organization outside the school; the main requirement is that it be an audience beyond that of the classroom. Presenting to an outside audience raises the stakes and thus helps motivate students and teacher alike.

# Why Use Project-Based Learning?

To quote from *Work That Matters*:

Today, teachers around the world are designing projects for their students because they ignite a shared passion for learning in both students and staff; they foster a wide range of skills (such as time management, collaboration, and problem solving) that students will need at college, university, and in the workplace; and they can be tailored to suit students with a wide range of abilities and learning needs.

In addition, teachers who are frustrated by narrow standardized test are finding that students can acquire the curriculum content they need through projects, without letting the test dictate the curriculum. (p. 13)

PBL has a significant potential to provide demonstrable applied learning. Demonstrable to the outside world, through the preparation of a final project, and to the students themselves, who are regularly tracking their progress and discussing not only *what* they've learned but reflecting on how they've learned it.

According to *PBL in the Elementary Grades*, in American elementary schools the most common applications of PBL fall in science- or social-studies-related categories, with literacy, math, and arts integrated as appropriate. This allows the teachers to balance more traditional instructional methods with a project-based approach, while still pointing out how lessons picked up in one subject area may be useful over the course of the project.

# A Sample PBL Project<sup>1</sup>

**Project Title:** Love Your Library!

**Outside Client:** The local public library

The project starts with the presentation of the driving question: “How do people use the library in our community?” or even “What would happen if the library wasn’t there anymore?” The class then has a set amount of time to come up with the final presentation to be held at the library, either in visual form (say, a series of posters to be put up in the library) or dramatic form (a formal talk hosted by the library).

Potential tasks students could complete as part of the project, depending on grade level and ability to assume responsibility, include:

- Write and illustrate a story about one of their favorite books or an event they enjoy at the library, such as storytime.
- Create a survey to be distributed throughout the school to learn how their fellow students use the library.
- Research the history of libraries in the United States as well as the history of the particular local library and the role it has played in the city.
- Interview librarians about their responsibilities and the parts of their job they enjoy.
- Learn about how libraries are funded and come up with new fundraising ideas.
- Research how technology is changing how libraries work and design a “library of the future.”
- Assess what percentage of the library’s resources (in terms of square feet, materials, or events) are devoted to children.
- Create a map of the library and a listing of library resources for the local city government to give to new residents.

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<sup>1</sup> Note that, in order to avoid appropriating someone’s intellectual property, I have made this example up myself.

## Challenges of PBL

The biggest challenges of implementing PBL, especially for those who haven't done it before, appear to be:

- **Designing the project.** The project should start from a driving question that isn't easily answerable and requires some degree of complex thinking, yet is graspable enough that students can drive towards an answer during the time given. Teachers may also be held responsible for framing the project in terms of set goals and standards.
  - (One suggestion sometimes given is to start with the end in mind—in other words, picture the kinds of materials the students would be able to produce if they had learned the standards. So, for example, if you were teaching first grade and your standards included “Organize, represent, and interpret data with up to three categories” [MGSE1.MD.4], then you'd imagine the final report including some sort of bar chart or other graphical comparison.)
- **Project management.** The teacher is responsible for guiding the class along and making sure the project stays on track; this means designing the project well, building in time to account for unexpected diversions or sticking points, and deciding when to let groups proceed at their own pace and when to move along.
- **Balancing hands-on and hands-off approaches.** PBL encourages child-directed approaches, to an extent, but it's not a hands-off system overall, even at higher grade levels.
- **Critiquing and teaching how to critique.** Encouraging students to revise their work and resubmit it may be tricky for some teachers (and even trickier for the students). In projects that include students giving feedback to each other, they may need to learn how to be kind yet useful in their criticism.

## Further Resources

### Books

Boss, Suzie, and Krauss, Jane. (2008) *Reinventing Project-Based Learning: Your Field Guide to Real-World Projects in the Digital Age*. International Society for Technology in Education.

Hallermann, Sara, Larmer, John, and Morgendoller, John R. (2011) *PBL in the Elementary Grades: Step-by-Step Guidance, Tools and Tips for Standards-Focused K-5 Projects*. Novato, CA: Buck Institute for Education.

Patton, Alan. (2012) *Work that matters: The teacher's guide to project-based learning*. Paul Hamlyn Foundation/Innovation Unit.

- <http://www.innovationunit.org/resources/work-matters-teachers-guide-project-based-learning> (free download of PDF)

### Articles

Coppell Gifted Association. (2014) "The Nuts and Bolts of Project-Based Learning."

- <http://coppellgifted.org/2014/03/21/the-nuts-and-bolts-of-project-based-learning/>

Heick, Terry. (2013) "3 Types of Project-Based Learning Symbolize Its Evolution." Te@chThought.

- <http://www.teachthought.com/learning/5-types-of-project-based-learning-symbolize-its-evolution/>

Lewandowski, Dan. (2009) "Travelling the world, virtually: Project-based learning in elementary school." LEARN NC (UNC School of Education, Chapel Hill, NC).

- <http://www.learnnc.org/lp/pages/6261>

Schwartz, Katrina. (2013) "What Project-Based Learning Is—And What It Isn't." KQED News, San Francisco, CA.

- <http://www.kqed.org/mindshift/2013/01/02/what-project-based-learning-is-and-isnt/>

### Websites: General

Buck Institute for Education

- <http://bie.org/>

Edutopia

- <http://www.edutopia.org/project-based-learning>



### Websites: Resources

Resources and Tools for PBL Start to Finish (from Manor New Technology High School in Manor, TX)

- <http://www.edutopia.org/stw-project-based-learning-best-practices-resources-lesson-plans>

Expeditionary Learning Open-Source Curriculum (note: grades 3 through 8 only).

- <http://commoncoresuccess.elschools.org/>

Resource List: Managing a Project (Buck Institute of Education)

- [http://bie.org/blog/resource\\_list\\_management\\_in\\_pbl](http://bie.org/blog/resource_list_management_in_pbl)

### Websites: Examples of Projects

Kindergarten Tools: A Kindergarten Expedition Into Tools and Their Uses

- <http://elschools.org/best-practices/kindergarten-tools-kindergarten-expedition-tools-and-their-uses> (summary of project)
- [http://elschools.org/sites/default/files/Tools%20LE\\_EL\\_0309.pdf](http://elschools.org/sites/default/files/Tools%20LE_EL_0309.pdf) (detailed writeup, including listing of curriculum goals)

Project-Based Learning Unit: Weather (2<sup>nd</sup> grade)

- <http://www2.davidson.k12.nc.us/pbl/eett/pblfiles/varner/PBL-weather.pdf>

Project Based Learning in the Elementary Classroom (archived presentation by two teachers)

- <https://prezi.com/dkyfpgpgzk6c/project-based-learning-in-the-elementary-classroom/>
- <http://globetrotters.wikispaces.micds.org/?responseToken=3490a7a30b41708459535afcdcdce6e4> (the archived output of the project, by a 2<sup>nd</sup> grade class)

PBL: Jumping In Headfirst (the first in a series of blog entries by two middle-school teachers in Minnesota, documenting their experiences with PBL; the rest of the series is linked on the left-hand side of the page)

- <http://www.edutopia.org/blog/pbl-pilot-jumping-in-headfirst-matt-weyers-jen-dole>