PROJECT BASED LEARNING TOOLKIT SERIES

PBL FOR 21ST CENTURY SUCCESS

Teaching Critical Thinking, Collaboration, Communication, and Creativity

PROJECT BASED LEARNING FOR THE 21ST CENTURY
About the Buck Institute for Education

Founded in 1987, the Buck Institute for Education works to expand the effective use of Project Based Learning throughout the world. BIE is a mission-driven not-for-profit 501(c)3 organization based in Novato, California, and is a beneficiary of the Leonard and Beryl Buck Trust. BIE has provided PBL professional development services to thousands of educators, curriculum development consulting, and ongoing support for organizations including school districts, state departments of education, foundations, and other partners in the United States and around the world. BIE hosts annual PBL World conferences, and offers online resources at its website and online classes at PBLU.org. It publishes the PBL Handbook, which has sold over 40,000 copies, and the PBL Toolkit Series of books on how to do PBL. BIE publications have been translated into nine languages.

PBL FOR 21ST CENTURY SUCCESS

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# Project Based Learning Toolkit Series

## PBL for 21st Century Success

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Foreword: About BIE’s PBL Toolkit Series

The PBL Toolkit Series is designed to help teachers and schools do Project Based Learning more effectively. If PBL is not done right, or if it’s done for the wrong reasons (“someone told us to do it”), it will be a waste of time. Incorporating PBL into your teaching is not like changing your textbook or incorporating a new Friday activity. PBL, done well, requires substantial changes in how teachers teach and how schools are organized.

PBL for 21st Century Success is the third in a series of short books on specific topics related to Project Based Learning. Each Toolkit is built around a combination of examples, guidance, and resources. The first book in the series is the PBL Starter Kit, which guides middle and high school teachers in planning and managing their first project. The second Toolkit is PBL in the Elementary Grades, for teachers in grades K-5. Other volumes in the series will be planned and published in response to the needs of the field.

More information and help can be found at the Buck Institute for Education’s website, bie.org, including Project Search and Project Design tools, links to project libraries, and access to a PBL community of more than 20,000 educators where you can ask questions and contribute your ideas about various PBL topics. The website also provides excerpts from the acclaimed PBL Handbook, which has now been translated into nine languages, and allows you to order copies of this and other BIE publications. There are also summaries of PBL research, and information about BIE professional development and district and school coaching. Finally, don’t miss the collection of videos of students and teachers planning and doing PBL, which you can access from the BIE website or through BIE’s YouTube channel, youtube.com/biepbl.

All of us here at BIE wish you well, as you use PBL to help students develop the competencies they will need for 21st century success.

John R. Mergendoller, Ph.D.
Executive Director
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Many people contributed ideas and inspiration for this book.

BIE Executive Director John Mergendoller and John Larmer, director of product development, recognized the need for this book and informed the contents with their valuable insights. Thanks to BIE staffers David Ross, Sara Hallermann, Alfred Solis, Lauren Scheller, Rosanna Mucetti, and Jason Ravitz for sharing their expertise and constructive feedback.

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INTRODUCTION

A growing urgency to prepare students for 21st century challenges has many educators looking for new instructional approaches. Mastery of academic content remains important, but it’s no longer enough. Students also need to develop the “process skills” that will help them navigate their rapidly changing world.

To meet these new demands, more and more teachers are turning to Project Based Learning, or PBL. PBL puts equal emphasis on academic learning goals and on the competencies students need more than ever in the 21st century. Through well-designed project experiences, students learn how to contribute to team efforts, think critically, solve problems creatively, and communicate effectively, all while engaging in deep learning of important content.

We know that the shift to PBL creates new questions for teachers: How do I design projects to meet goals for both content mastery and 21st century learning? What does 21st century learning mean, anyway? Is it fair to assess students on hard-to-measure skills like creativity? How can I find time to focus on goals like learning to collaborate when I’m scrambling to meet the new Common Core State Standards?

This book offers practical answers to help you and your students get a better handle on 21st century competencies.

The Purpose of This Book

The benefits of PBL are compelling, but they aren’t automatic. After years of experience with this instructional approach, we know that students need to be supported by teachers who understand how to design, manage, and assess high-quality PBL. Other books in the Buck Institute for Education Toolkit Series, as well as our intensive professional development programs, focus in depth on PBL processes that lead to high-quality learning experiences. (Learn more about the PBL Toolkit Series and professional development opportunities at our website, bie.org)

This book will help you expand your PBL toolkit with practical strategies for teaching specific 21st century competencies to middle school and high school students. We also offer guidance
The 4 C’s—critical thinking, collaboration, creativity, and communication—are a natural fit with PBL.

on how to assess these competencies. Although there are many competing definitions of 21st century learning, we focus here on the four competencies that we consider most essential. These 4 C’s — critical thinking, collaboration, creativity, and communication — are a natural fit with PBL.

One additional note: In this book we have chosen to move beyond the commonly used term “21st century skills” in favor of “21st century competencies.” We think it’s more accurate to describe someone as “competent” in, say, thinking critically, rather than saying he or she has the “skill” to do so. The 4 C’s are complex sets of competencies, which often involve more than a single skill. If students are competent communicators, they are able to organize information, time its delivery, read the audience reaction, and change the message they had intended to give right there on the spot. As our rubrics suggest, good communicators need to be competent in a variety of areas; they don’t simply exercise a single communication skill.

How to Use This Book

This book is designed to help you deliberately teach and assess the 4 C’s in the context of well-designed projects. You will gain a better picture of what this looks like from the detailed project close-ups you will find in each chapter. Then, to help you teach and assess each of the 4 C’s in your own projects, we take you through a three-part approach. We call it Design-Develop-Determine. In each of the upcoming chapters, we will walk you through how you can use the “3 D’s” to help you and your students master the “4 C’s.” At each stage of Design-Develop-Determine, you’ll be prompted to consider key questions. For example:

- **Design:** When you are designing a project, how can you find opportunities to focus on specific 21st century competencies? Which types of projects, Driving Questions, and products work best for developing specific competencies?

- **Develop:** When students are engaged in the project, how are you developing their understanding of what each of the 4 C’s means, and their ability to apply them? How can you incorporate learning activities that will support and strengthen their development of these competencies?

- **Determine:** At the end of the project, how can you determine, through your assessment strategies, that students have become more proficient at applying the 4 C’s? How can you help them reflect on what they’ve gained?
How you use the book will depend on your prior experiences with PBL and your professional learning goals. For example:

- **If you are new to PBL**, use this book to build your understanding of the project approach. You may want to read this book in tandem with the *PBL Starter Kit*, which provides a more detailed introduction for middle and high school teachers to all phases of project planning, management, and assessment. (BIE’s PBL Toolkit Series book for K-5 teachers is *PBL in the Elementary Grades*.)

- **If you have a basic understanding of PBL** — perhaps you've tried a project or two — use this book to sharpen your focus on students’ 21st century competencies and troubleshoot challenges. You may, for example, want to know more about how to explicitly teach and assess specific competencies, rather than simply assume students are learning them in a project.

- **If you are a PBL veteran**, use this book to go even deeper with 21st century learning goals. For example, you may be ready to tackle projects that take students into the community, address global learning goals, or use technology to connect with other classrooms for deeper inquiry.

- **If you are an instructional coach or school leader**, use this book to frame conversations with teachers and inform classroom observations of 21st century PBL in action. You may find the book helpful for sharing with parents and other community members who are interested in preparing students for college and careers. The last chapter contains guidance for building support for 21st century learning among parents and your community, as well as advice for creating system-wide policies and practices that will support teachers as they implement PBL.

**You can also use this book to integrate technology into PBL.** Instead of treating technological know-how as a separate 21st century competency, we have incorporated suggestions for technology use to address each of the 4 C’s.

**This book also contains guidance on meeting the needs of English learners** in a PBL environment. Look for tips scattered throughout plus several special notes in the Communication chapter.
Special Features Ahead
Throughout the book, watch for these special features and call-outs:

**What Should You See?**
Where should you focus your attention during a visit to a PBL classroom if you want to find evidence of 21st century learning?

In each of the upcoming chapters, we offer a list of questions to keep in mind if you want to know whether students are developing their capacity as critical thinkers, collaborators, communicators, or creative thinkers. If you are an administrator doing classroom walk-throughs, instructional coach, or curious parent — or a teacher seeking to improve your own PBL practice — you can use these questions to guide your observations and reflections.

Remember, one of the best ways to understand what’s happening in a busy PBL classroom is to ask students. They should be able to explain what they’re working on and which strategies are helping them make progress toward answering their Driving Question.

**Tip from the Classroom** is a signal to listen for ideas you can borrow from experienced PBL teachers.

**Bulletin Board** Here you’ll find examples, resources, and closer looks at strategies you can use to support students.

**TechTip** A wide range of technology tools can be integrated into PBL to expand and deepen opportunities for authentic, rigorous learning. Each of the upcoming chapters suggests tech tools to help with specific 21st century competencies.

For starters, here’s a tip to support your exploration of 21st century learning through PBL:

**TechTip** Join the Conversation
Become part of an international conversation about PBL by joining the PBL Community on Edmodo, a free social network dedicated to education (edmodo.com/biepbl). You will find an active online community for exchanging ideas and resources with teaching colleagues, along with an ever-expanding set of PBL tools, videos, and other materials from BIE. It’s a great platform for asking questions, inviting feedback, and reflecting on your own professional growth as a PBL teacher. If Edmodo is new to you, don’t let that stop you. There’s no better way to model being a 21st century learner than to learn something new yourself!
What’s Essential in PBL

Before we go further with our exploration of 21st century competencies, let’s be sure we’re starting on the same page when it comes to talking about Project Based Learning.

What do we mean by PBL? We know from experience that good projects can vary widely. They might last only a week or two, or continue for an entire term. They can focus on one subject area or take an interdisciplinary approach. Regardless of the differences, well-designed PBL shares common elements.

Here’s how we define this approach:

*Project Based Learning is a systematic teaching method that engages students in learning important knowledge and developing 21st century competencies through an extended, student-influenced inquiry process structured around complex, authentic questions and carefully designed products and learning tasks.*

When PBL is working according to plan, you should see a high degree of student engagement. Rather than asking, “Why do I need to learn this?”, students are driven by their own inquiry. We often say that a project gives students a strong Need to Know. What’s more, students are able to apply what they are learning to solve an authentic problem or address an issue that they care about. They know how to communicate their findings to a public audience. It adds up to meaningful and lasting learning.

Whatever form a project takes, it must have these eight essential elements to meet our definition of high-quality PBL:

**Significant Content:** At its core, the project is focused on teaching students important knowledge and skills, derived from standards and key concepts at the heart of academic subject areas.

**21st Century Competencies:** Students build competencies valuable for today’s world, such as critical thinking/problem solving, collaboration, communication, and creativity/innovation, which are taught and assessed.

**In-Depth Inquiry:** Students are engaged in a rigorous, extended process of asking questions, using resources, and developing answers.

**Driving Question:** Project work is focused by an open-ended question that students explore or that captures the task they are completing.
Need to Know: Students see the need to gain knowledge, understand concepts, and apply skills in order to answer the Driving Question and create project products, beginning with an Entry Event that generates interest and curiosity.

Voice and Choice: Students are allowed to make some choices about the products to be created, how they work, and how they use their time, guided by the teacher and depending on age level and PBL experience.

Revision and Reflection: The project includes processes for students to use feedback to consider additions and changes that lead to high-quality products, and think about what and how they are learning.

Public Audience: Students present their work to other people, beyond their classmates and teacher.

Watch for mention of these eight elements throughout the book.