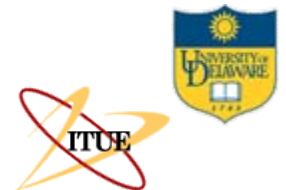


Writing Effective PBL Problems



**Courtesy of
Deborah Allen
*University of Delaware***





Step One: *Identify Learning Objectives*

Think of a learning objective in your course.

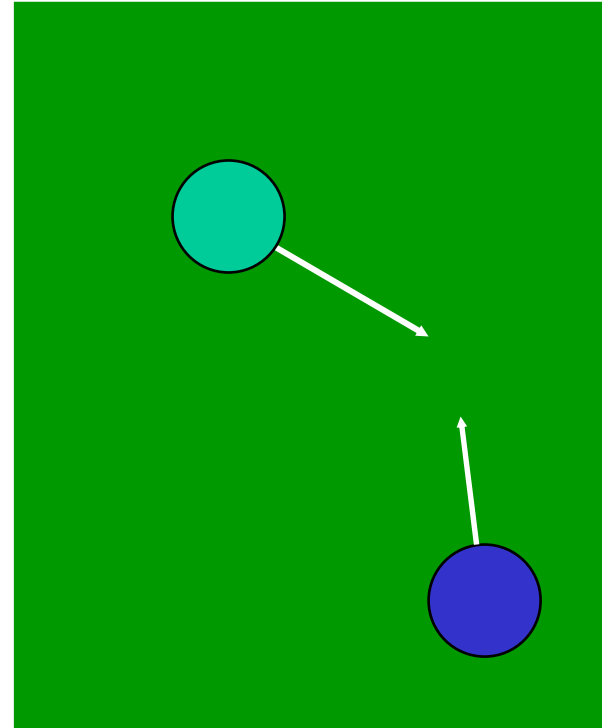
How do you usually address this learning objective? What kind of problem or activity do you usually assign?

- Typical end-of-chapter problem?**
- A reading?**
- Other?**

Example from Physics: Solving Problems Using Conservation of Momentum

Traditional examples:

- **Pool balls colliding**
- **Bullets hitting blocks of wood**





Example from Physics: Traditional End-of-Chapter Problem

A 1500-kg car traveling east with a speed of 25 m/s collides at an intersection with a 2500-kg van traveling north at a speed of 20 m/s. Find the direction and magnitude of the velocity of the wreckage after the collision, assuming that the vehicles undergo a perfectly inelastic collision (ie, they stick together).



Serway and Faughn. 3rd ed. College Physics, Saunders, 1992.





Types of Learning Objectives

Content-oriented: subject specific

- Basic knowledge and understanding of specific concepts, techniques, etc. in the discipline

Process-oriented: global skills

- Effective communication: oral and written
- Acquiring and evaluating information
- Working effectively with others
- Higher order, critical thinking



Step 1: Writing Learning Objectives

- Identify several learning objectives for your PBL development; consider both content and process goals.
- Traditionally, how might these learning objectives be addressed? What kind of problem or activity would you assign?



Step Two: Identify Real-World Context

**Name a realistic application of the concept.
Outline a scenario.**

Ideas:

- **Add story-telling to end-of-chapter problem.**
- **Add motivation, require students to go beyond rote learning, do research.**
- **Include decision-making, analysis, or both.**
- **Other?**



Step Two: Identify Real-World Context

**Name a realistic application of the concept.
Outline a scenario.**

Ideas:

- **Add story-telling to end-of-chapter problem.**
- **Add motivation, require students to go beyond rote learning, do research.**
- **Include decision-making, analysis, or both.**
- **Other?**



Step Three: Draft the problem

Outline the problem (create a ‘story board’) First consider, “What will be on the first page?”

Suggestions:

- **Good PBL problem has multi-page, multi-stage construction – progressive disclosure.**
- **Not all information given in chapter or text - students look for resources.**
- **Challenge students to come to consensus, reach conclusions, and make judgments.**



Sources and Strategies for Writing Problems

Newspaper articles, news events

Popular press in the discipline

Make up a story – based on content objectives

Adapt a case to a problem

Research papers

Other?



PBL Clearinghouse

An online database of PBL articles and problems.

All material is peer-reviewed by PBL practitioners for content and pedagogy.

All problems are supported by learning objectives and resources, teaching and assessment notes.

Holdings are searchable by author, discipline, keywords, or full text.

Fully electronic submission, review, and publication cycle.

Controlled access by free user subscription, students excluded.



Problem-Based Learning Clearinghouse University of Delaware

[Exit PBLC](#)

About the Clearinghouse

Welcome to the PBL Clearinghouse, a collection of problems and articles to assist educators in using problem-based learning. The problems and articles are peer reviewed by PBL experts in the disciplinary content areas. Teaching notes and supplemental

What's in the Clearinghouse?

[View sample problems and articles.](#)

Logon to the Clearinghouse

Enter your Clearinghouse Email-ID and password.

Email-ID:

Password:

[Logon](#)

www.udel.edu/pblc

Clearinghouse collection is limited to educators who register via an online application, but is free and carries no obligation.

For more information

[About Us](#)
[Read the Clearinghouse FAQ.](#)
[Question and comment form](#)
Institute for Transforming Undergraduate Education
Problem-Based Learning at the University of Delaware

