

# Problem-based learning (<http://www.studygs.net/pbl.htm>)

**Problem-based learning (PBL) is an exciting alternative to traditional classroom learning.**

With PBL, your teacher presents you with a problem, not lectures or assignments or exercises. Since you are not handed "content", your learning becomes active in the sense that you discover and work with content that you determine to be necessary to solve the problem.

**In PBL, your teacher acts as facilitator and mentor**, rather than a source of "solutions."

**Problem based learning will provide you with opportunities to**

- examine and try out what you know
- discover what you need to learn
- develop your people skills for achieving higher performance in teams
- improve your communications skills
- state and defend positions with evidence and sound argument
- become more flexible in processing information and meeting obligations
- practice skills that you will need after your education

## **A Summary of Problem-Based Learning:**

This is a simplified model--more detailed models are referenced below.

**The steps can be repeated and recycled.**

Step six may occur more than once--especially when teachers place emphasis on going beyond "the first draft."

### **1. Explore the issues:**

Your teacher introduces an "ill-structured" problem to you.

Discuss the problem statement and list its significant parts.

You may feel that you don't know enough to solve the problem but that is the challenge!

You will have to gather information and learn new concepts, principles, or skills as you engage in the problem-solving process.

### **2. List "What do we know?"**

What do you know to solve the problem?

This includes both what you actually know and what strengths and capabilities each team member has.

Consider or note everyone's input, no matter how strange it may appear: it could hold a possibility!

### **3. Develop, and write out, the problem statement in your own words:**

A problem statement should come from your/the group's analysis of what you know, and what you will need to know to solve it. You will need:

- a written statement
- the agreement of your group on the statement
- feedback on this statement from your teacher

**Note:** The problem statement is often revisited and edited as new information is discovered, or "old" information is discarded.

### **4. List out possible solutions**

List them all, then order them from strongest to weakest

Choose the best one, or most likely to succeed

## **5. List actions to be taken with a timeline**

- What do we have to know and do to solve the problem?
- How do we rank these possibilities?
- How do these relate to our list of solutions?  
Do we agree?

## **6. List "What do we need to know?"**

Research the knowledge and data that will support your solution  
You will need to information to fill in missing gaps.

- Discuss possible resources  
Experts, books, web sites, etc.
- Assign and schedule research tasks, especially deadlines

**If your research supports your solution,  
and if there is general agreement, go to (7). If not, go to (4)**

## **7. Write up your solution with its supporting documentation, and submit it.**

You may need to present your findings and/or recommendations to a group or your classmates.

This should include the problem statement, questions, data gathered, analysis of data, and support for solutions or recommendations based on the data analysis: in short, the process and outcome.

## **Presenting and defending your conclusions:**

The goal is to present not only your conclusions,  
but the foundation upon which they rest. Prepare to

- State clearly both the problem and your conclusion
- Summarize the process you used, options considered, and difficulties encountered
- Convince, not overpower  
Bring others to your side, or to consider without prejudice your supporting documentation and reason
- Help others learn, as you have learned
- If challenged  
and you have an answer, present it clearly  
and you don't have an answer, acknowledge it and refer it for more consideration

Sharing your findings with teachers and students is an opportunity in demonstrating that you have learned. If you know your subject well, this will be evident. If a challenge arises that you cannot respond to, accept it as an opportunity to be explored. However, take pride in your attention to quality when you present.

## **8. Review your performance**

This debriefing exercise applies both to individuals and the group.

Take pride in what you have done well; learn from what you have not done well. Thomas Edison took pride in unsuccessful experiments as part of his journey to successful outcomes