

Problem-Based Learning

What it is: In problem-based learning students form teams to examine and solve a real world interdisciplinary problem that is ambiguous (i.e., it has no one correct answer). The teams use a series of predictable steps to define the problem, brainstorm and evaluate possible solutions, and create a final product. Problem-based learning addresses two characteristics of students with gifts and talents. First, it challenges students that absorb new information quickly by requiring them to create new knowledge between disciplines. Second, it engages students that like to explore topics in depth.

Benefits:

- Emphasizes complex concepts
- Develops disciplinary knowledge
- Encourages interdisciplinary connections
- Is learner-centered
- Uses real world problems
- Emphasizes collaborative teamwork
- Encourages metacognition
- Builds self-efficacy and confidence
- Involves the local community

Examples:

- McMaster University Faculty of Health Sciences (original model)
- Acting as Johnston County Soil and Water Conservation District agents, small groups of students design a proposal for reworking an existing butterfly garden on the Princeton School campus. Students test existing garden soil properties and take an inventory of existing plants in order to suggest improvements to the garden. Teams develop a \$100.00 budget and map their plan for the garden.

Situations where it's useful:

- When there is a difference in students' levels of readiness
- When activities or tasks focus on a common area of interest
- When activities or tasks emphasize a particular learning style
- When activities or tasks require a variety of learning styles

Pointers:

- Students will require instruction to learn the steps of the problem-solving process
- Students will need to understand their roles and responsibilities on the team before beginning
- Students may need guidance/support/instruction to work collaboratively
- Teachers act as tutors or coaches
- Teacher and peer feedback throughout the process is critical for success

References/Resources

ALTEC. (n.d.) *Checklists to support project based learning and evaluation*. Retrieved from <http://pblchecklist.4teachers.org/index.shtml>.

Author unknown. (n.d.). *Problem based learning*. Retrieved from <http://www.personal.psu.edu/wxh139/PBL.htm>.

Landsberger, J. (n.d.). *Problem based learning*. Retrieved from <http://www.studygs.net/pbl.htm>.

Miller, A. (2011). *How to write effective driving questions for project-based learning*. Retrieved from <http://www.edutopia.org/blog/pbl-how-to-write-driving-questions-andrew-miller>.

Plymouth PBLs wiki. Retrieved from <http://plymouthpbls.wikispaces.com>.

Spence, L.D. (n.d.). *Problem based learning: Lead to learn, learn to lead*. Retrieved from <http://www.studygs.net/pblhandbook.pdf>.