

Project-Based Learning Chemistry Mini-Lesson at Lanier High School, Part 3 of 3



About the Project-Based Learning Series

Through project-based learning (PBL), students gain content knowledge and 21st century skills by addressing authentic, challenging questions and real-world problems. This series presents actual examples of students creating projects in schools that have successfully implemented project-based learning.

Pre-Viewing Discussion Prompt

What elements would you incorporate into a PBL program to help ensure that students achieve content mastery?

Project-Based Learning Essentials

- Projects focus on **Significant Content** aligned with performance standards and key curricular concepts.
- Students are given a **Driving Question** that is open ended and thought provoking.
- Students have an age-appropriate level of autonomy within **Voice and Choice** regarding the project/solution and its execution.
- Students recognize a **Need to Know** new information and related concepts in order to answer the Driving Question.
- They conduct **In-Depth Inquiry** to fulfill their Need to Know.
- Throughout the project, students participate in **Critique and Revision** through established processes of offering and receiving feedback.
- Project-based learning is concluded with a **Presentation** to peers, and to the extent possible, members of the community as well.

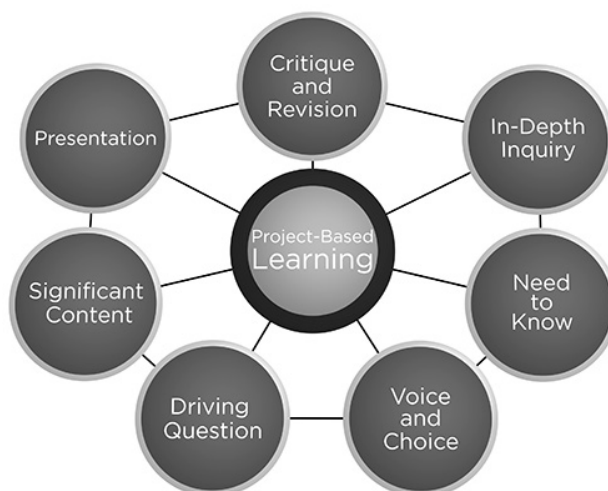
About this Segment

At the Center for Design and Technology at Lanier High School in Buford, Georgia, students learn new content through mini-lessons and later incorporate this knowledge into project-based learning tasks.

In this segment, students in Dr. Margaret Rohrbaugh's chemistry class complete a mini-lesson in which they review prior knowledge about acids and bases, and use logarithmic functions to calculate pH and pOH.

Reflection Questions

1. What are the advantages of using mini-lessons to introduce new content and review previously learned material in a PBL program?
2. Which of the PBL Essentials (featured left) are met by presenting and reviewing content in mini-lessons?
3. How could you structure and implement mini-lessons in a PBL program to ensure that students can demonstrate content mastery?



Resources from School Improvement Network

Knowing the subject and how to teach it. *High-Quality Teaching for Classroom Success*. Edviation. <https://pd360.com/-resources/videos/300>.

Project-based curriculum elements. *Equity and Innovation: West Hawai'i Explorations Academy*. Edviation. <https://pd360.com/#resources/videos/5327>.

Project-based learning. *Equity and Innovation: Kihei Charter School*. Edviation. <https://www.pd360.com/index.html-resources/videos/4992>.

Relevant Academic Articles

Larmer, J., & Mergendoller, J. R. (2012). 8 essentials for project-based learning. Buck Institute of Education. Retrieved July 22, 2014, from http://bie.org/object/document/8_essentials_for_project_based_learning

Schwalm, J., & Tylek, K. S. (2012). Systemwide implementation of project-based learning. *Afterschool Matters*, Spring 2012: 1-8. Retrieved July 21, 2014, from http://bie.org/object/document/systemwide_implementation_of_pbl

Practical Resources

Boss, S. (2014). A world of ideas you can steal. Edutopia. Retrieved July 22, 2014, from <http://www.edutopia.org/blog/a-world-of-project-ideas-to-steal-suzie-boss>

National Academy Foundation. (n.d.) Project-based learning: A resource for instructors and program coordinators. Retrieved July 22, 2014, from http://naf.org/files/PBL_Guide.pdf

NYC Department of Education. (2009). Project-based learning: Inspiring middle school students to engage in deep and active learning. Retrieved July 22, 2014, from <http://4thgradeintecc.blogspot.com>