

PROJECT OR PROBLEM BASED LEARNING

KATHIE DEKALB –
FORT PLAIN CS

kathleen.dekalb@fortplain.org



Tony Wagner,
The Global Achievement Gap

“There is a profound disconnect between what students are taught and tested on in most high schools today and how they are expected to learn, versus what the world will demand of them as adults and what motivates them to do their best.”

- Define PBL – is that project-based learning or problem-based learning?
- Identify the role of the teacher and student in PBL units.
- Steps to building a PBL unit and examine forms that should be used.
- Examine a “real life” PBL project provided by our colleague!
- Complete or begin steps to creating PBL units!



What is Project or Problem Based Learning?

- It's an instructional method!
- PBL is the use of in-depth and rigorous classroom assignments to facilitate learning and assess student competence.

-
- ① Students use technology and inquiry to respond to a complex issue, problem or challenge. “How should we solve...?”
 - ① PBL allows students to work independently as possible and have some degree of “voice and choice.”

-
- ① Focuses on a rigorous, extended process of inquiry into complex, authentic questions and problems.
 - ② Builds an in-depth understanding of academic knowledge and skills
 - ③ Includes high-quality products but may just provide answers to a problem without an actual product!

Comparing/Contrasting Problem and Project-Based Learning Approaches

diagram by: Julia Osteen

unique attributes:

1. begins with a problem for students to solve or learn about
2. problems can be framed in a scenario or case study format
3. problems are somewhat ambiguous to mirror the complexity of real life
4. uses an inquiry model
5. students present conclusion of problem-solving process but do not necessarily create a product as a result
6. defined problem is driving force

Problem-Based Learning

shared attributes:

1. engage students in authentic, real-world tasks
2. open-ended projects or problems have more than one approach or answer
3. projects or problems intended to simulate professional situations
4. student-centered, teacher-facilitated
5. students work in groups for extended periods of time
6. students encouraged to seek out multiple sources of information
7. emphasis on authentic, performance based assessment
8. ideally both approaches provide adequate time for student reflection and self-evaluation

unique attributes:

1. begins with an end product or "artifact" in mind
2. production of artifact typically raises one or more problems for student to solve
3. uses a production model and mirrors real world production activities
4. students use or present the product they have created
5. end product is driving force
6. content knowledge and skills acquired during the production process are important to success

Project-Based Learning

Misconceptions of PBL

It is not: a “fun” activity or a project



It is: “a set of learning experiences and tasks that guide students in inquiry toward answering a central question, solving a problem, or meeting a challenge”

Misconceptions of PBL

It is not: the same as “making something” or “hands-on learning” or “doing an activity”

It is: a focus on creating physical artifacts. It must involve other intellectually challenging tasks and products focused on research, reading, writing, discussion and oral presentation

Role of the Teacher

- PBL allows the teacher to work more closely with students, acting more like a coach or project manager, instead of the “person with all the answers”
- As students become more able to work independently, the teacher plans and facilitates less



The View of the Student



- The student motivation improves through PBL, by showing them what they are learning connects with the outside world
- Makes learning more relevant and meaningful

- Changes the culture of the classroom
- Improves mastery of 21st century skills
- PBL is effective with all kinds of students - with the right support



Building a PBL Unit

- Start with essential questions or driving questions which provide the broad framework
- Build in reflection pieces which refers to the process the student uses to form understanding and knowledge into their subject matter



Products and Assessments

- Learning artifacts may include reports, presentations, brochures, debates, demonstrations, or any other way to show evidence of student learning or conclusion.
- Assessments – an integral part of PBL
 - Rubrics
 - Collection of products or demonstrations, journals
 - Could include sketches, graphs, outlines, etc.

Is the Sky the Limit?

- ◉ What requirements do you live with?
- ◉ Time frame?
- ◉ Classroom?
- ◉ Students?
- ◉ Resources?

Start small!

Now let's get to work!

Step 1: An Idea

- Explore, share and brainstorm!
- Visit web sites to find a project that falls within the realm of PBL.
- NYS standards, CCSS, curriculum maps, community issues
- Students!



Need an Idea?

- ◉ Learning standards
- ◉ Know your students – what do they find interesting and relevant?
- ◉ Community issues
- ◉ World issues
- ◉ Colleagues
- ◉ Online -



BUCK INSTITUTE
FOR EDUCATION
PROJECT BASED LEARNING FOR THE 21ST CENTURY

Kitchen – Design on a Dime



Mary Buddenhagen
St. Johnsville CSD

Summary of Issue

You have just moved into a new apartment and all the rooms have been redone except the kitchen. You plan on staying in your apartment for a while. You like to cook and entertain but it is a very old kitchen and not conducive to either. You talked to the landlord and he said he will pay for you to remodel the kitchen if you present to him your plans and he approves it. He also said you can include labor costs. Your landlord has set a budget which you have to stick to. Now it is up to you to design the kitchen and create a presentation for the landlord.

Step 2: Planning Document

○ AKA:

- Storyboard
- Graphic organizer
- Agenda
- Place to help you stay focused!



Step 3: Driving Question

- Characteristics:
 - Provocative or challenging
 - Open-ended and/or complex
 - Linked to the core of what you want students to learn.



Back to the Business Math Unit:

- How can I use my math and computer skills to design my apartment's new kitchen and stay within my budget?

Design...

- Students must be able to:
 - Work in teams
 - Create a legal and binding contract
 - Read, write, round, add, subtract, multiply, and divide whole numbers, decimals, fractions, percents, mixed numbers
 - Create and maintain a budget in an Excel spreadsheet

-
- Read an English ruler and be able to use it to measure
 - Maintain an hourly time card
 - Use computer aided design software
 - Plan, create, and present information
 - Answer questions presented by the judges about their projects
 - Create a professional portfolio

Step 4: Design Culminating “Products”

- Where do you want to end up?
 - Written
 - Presentation
 - Technological
 - Media
 - Construction
 - Planning

Design on a Dime

● **Group:**

- Team Tracking Sheet
- Team Observation Checklist
- Team Presentation Rubric
- Team Budget and Graph Rubric
- Team Presentation Checklist
- Team Portfolio Checklist

● **Individual:**

- Individual Presentation Rubric
- Section Tests
- Individual Project Checklist
- Individual Peer Evaluation

Step 5: Summative Assessments

○ Rubrics!

- Presentation rubric
- Collaborative rubric
- Journals or learning logs
- Self-report
- Peer report

Design....

- ◉ Written budget, with rubric
- ◉ Oral Presentation, with rubric
- ◉ Presentation to Landlord
- ◉ Peer Evaluation
- ◉ Short Answer Tests
- ◉ Self-Evaluation
- ◉ Essay Test

Step 6: Formative Assessments

- ◉ Quizzes, quick write up to explain a concept, homework
- ◉ Assess specific skills: using technology or equipment, writing, etc.
- ◉ Quality of student work: logs, journals, storyboards, etc.
- ◉ Process skills: group work, collaboration, hold conferences, meetings

Design...

- ◉ Quizzes/Tests
- ◉ Practice Presentations
- ◉ Journal/Learning Log
- ◉ Notes
- ◉ Preliminary Plans/Outlines/Designs
- ◉ Checklists
- ◉ Rough Drafts
- ◉ Rubric
- ◉ Online Tests/Exams

Step 7: Design Entry Event

- ◉ Spark interest on day one!
 - Give students a piece of correspondence (real or fictitious) presenting a challenge
 - Have a classroom discussion about an issue of interest or events in the news
 - Review a website
 - Guest speaker
 - Field trip
 - Demonstration or activity
 - Video
 - Read something provocative

Design...

- ① Visit to school's home ec room (which needs repair)
- ① Lively classroom discussion about what the room needed, etc.
- ① Presented "real life" problem or scenario

Step 8: Showtime!

◎ Present to an audience

- Potential audiences?
 - Other students
 - Teachers
 - Administration
 - Community member
 - Carpenter

Design...

- ◉ Administration
- ◉ Construction companies from community
- ◉ Bank

Step 9: Reflection

- ◉ Individual reflection
- ◉ Group reflection
- ◉ Teacher reflection

Design...

- ◉ Journal/Learning Log
- ◉ Focus Group
- ◉ Whole-Class Discussion
- ◉ Fishbowl Discussion
- ◉ Survey