

Got 99 Problems? **PBL Can Help!**

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The Illinois Mathematics and Science Academy
Statewide Educator Innovation

Who Are We?



- Public Residential Math and Science Academy, grades 10-12



Admissions Info



- Educator outreach within Illinois, across the country, and globally



Educator Outreach

Objectives:

- Learn about Problem Based Learning at IMSA
 - Immerse in a brief PBL experience
 - Explore training structures
 - Discuss future options

What is Problem Based Learning (PBL)

Problem Based Learning is a student-centered, inquiry-based instructional approach utilizing a real-world, ill-defined (messy) problem to both introduce and explore specific content

What is Problem Based Learning (PBL)

Hello,

My name is Nicole and I have a small homemade perfume business. I plan to open an online store and ship my products across the US. To do so, I must consider shipping factors.

I plan to use packing peanuts in a way that is both environmentally friendly and economical. Below are two options I have found, labeled A and B. One is Styrofoam and another is "sustainable", I can't recall which is which. I am providing samples of both along with some current pricing information.

	Peanut A	Peanut B
Cost	44.89	24.49
Amount of Product	2000/bag	500/bag

There is more to overall cost of use than simply the sticker price of the peanuts. Sometimes things listed as good for the environment are not so sustainable when put into practice. I am hoping you can help to determine which peanut is, in fact, the most usable, economical and environmentally friendly, considering my products are liquids in containers that may break.

I look forward to your suggestions so I can open my business in 2 weeks!

Thank you,
Nicole R.



Understanding the Problem

Two important questions arise: *what do we know about the problem* and *what more do we need to know to solve the problem*? We typically ask these questions in a whole class setting using a Know/Need to Know chart. *Please fill in your answers to these questions for the perfume problem on the chart below:*

Know	Need to Know

Problem Statement Helps Define the Journey

How do we _____ in such a way that we consider _____?

PBL Basics:

Three Stages of Problem Based Learning

Understanding
the
Problem

Exploring
the
Curriculum

Resolving
the
Problem

PBL Basics

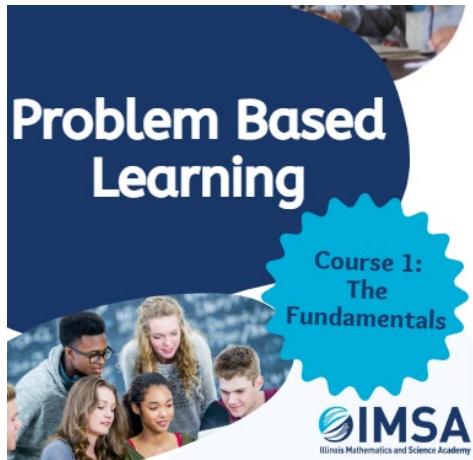
- Messy Real World Problem
- Multiple routes to solution
- Connected to curriculum
- Students lead with facilitation
- Real stakeholders who may use solution
- Uses authentic assessments, but can relate to traditional/standard tests and quizzes
- Familiar: rooted in inquiry-based, problem-centered instruction

Updating the Traditional

- Traditional yields best results
- One complaint: difficult to immediately implement
- Common question: how do we assess
- One consideration: experience with inquiry

How do we develop PBL training that shows the accessibility of the technique?

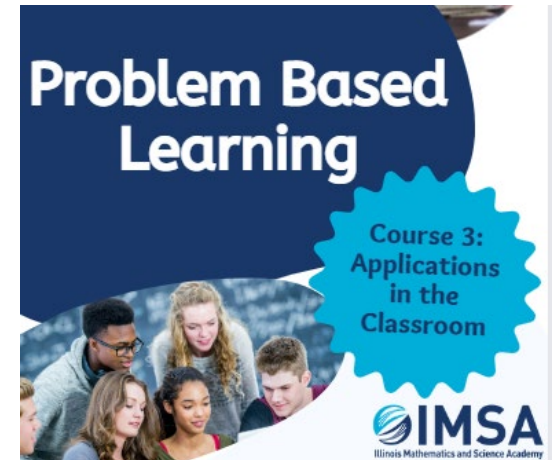
3 Course Training



Begin with the traditional



Focus on Design Elements



Address Preparation and Adaptation

Options



- Standard 3 course option – asynchronous, with instructor support.
- Offered various times throughout the year
- Currently \$50/per course



- In person training options
- 3-6 hour versions, week long workshops
- Offered periodically, varied pricing



- Custom Option
- Can be blended with online experience
- \$\$ but optimal for large groups

Thank You!

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Please tell us how we did!

3 Hour Micro Certification courses:

