

Project-Based Learning

Why?

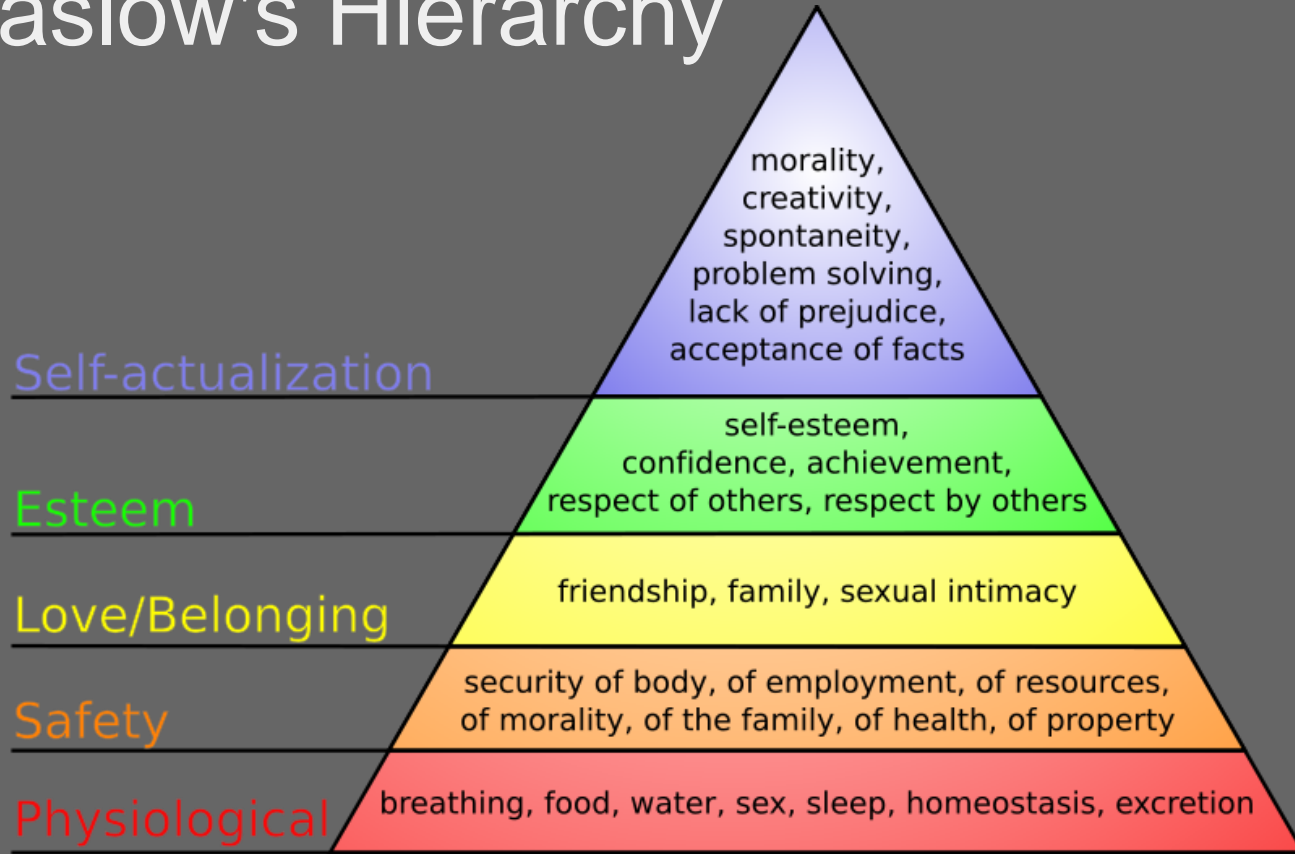
When?

How?

How often?

How to grade it?

Maslow's Hierarchy



STEM Habits of Mind

Critical Thinking

Predictions

Using Data

Analysis and Evaluation

Real-World applications

Observation

Creative or Innovative Solutions

Communication and Documentation

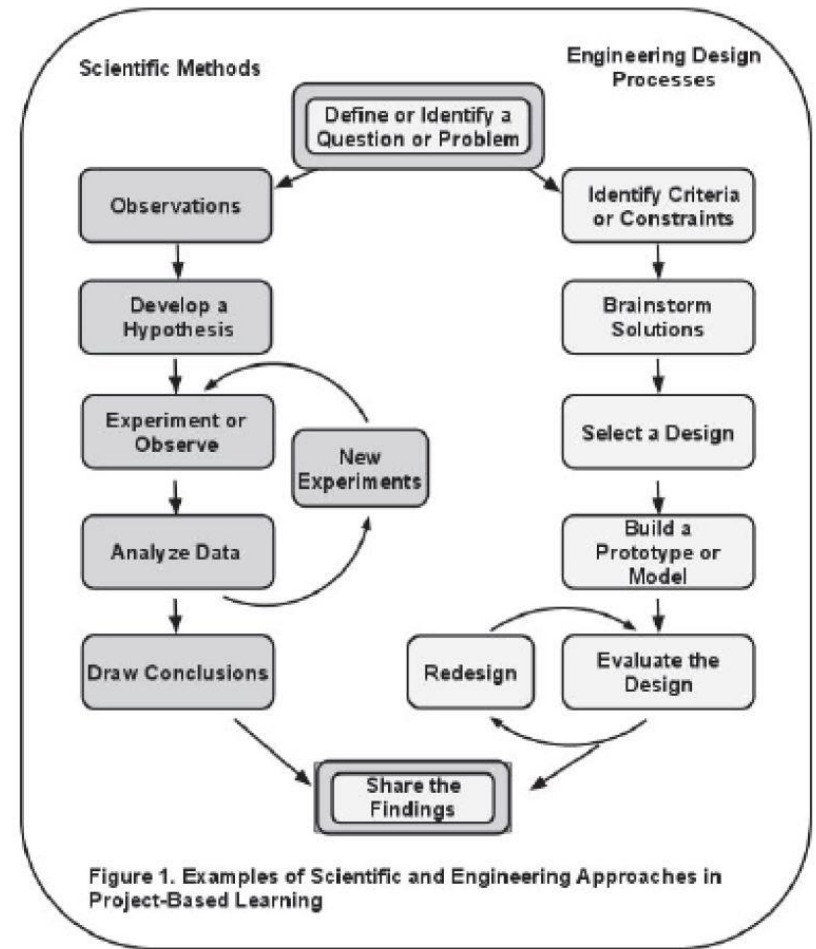
Collaboration

Reflection

Problem-Solving

Making Mistakes

Scientific Methods & Engineering Design Processes Can work together.

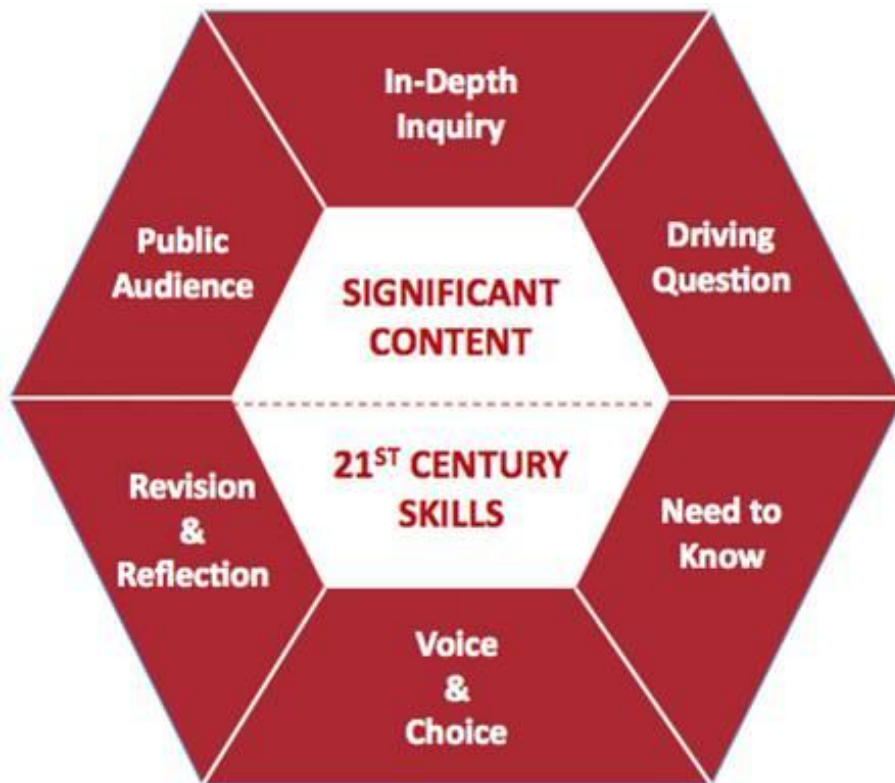


PjBL

Project-Based Learning

PbBL

Problem-Based Learning



Larmer and Mergendoller's 8 Essentials of PjBL (2011):

1. Significant content
2. A need to know
3. A driving question
4. Student/Learner voice and choice
5. 21st century skills
6. Inquiry and innovation
7. Feedback and revision
8. Publicly presented products



Facilitating real-world experiences

Consider:

- Project-management;
- Problem-solving;
- Design-driven solutions;
- Computational thinking;
- Group work and autonomy;
- Presentations, presentations, presentations;
- Diverse media options; and
- Creativity.



Using Technology in PjBL

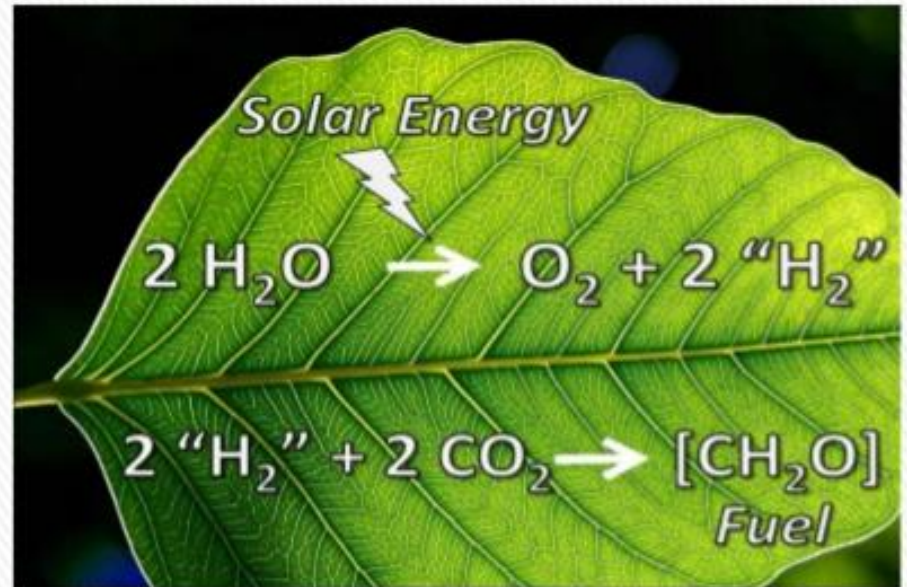
- Emphasis on data and technologies;
- Curriculum mapping and planning;
- Integration based on themes;
- Teacher-learner roles;
- Classroom environments;
- Collaborations;
- Community connections;
- Autonomy; and
- Products.

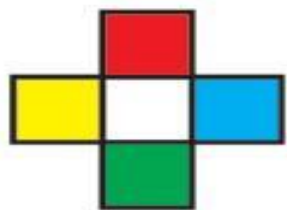


**We can
introduce
students to
genuine inquiry
through familiar
*relevant
themes.***

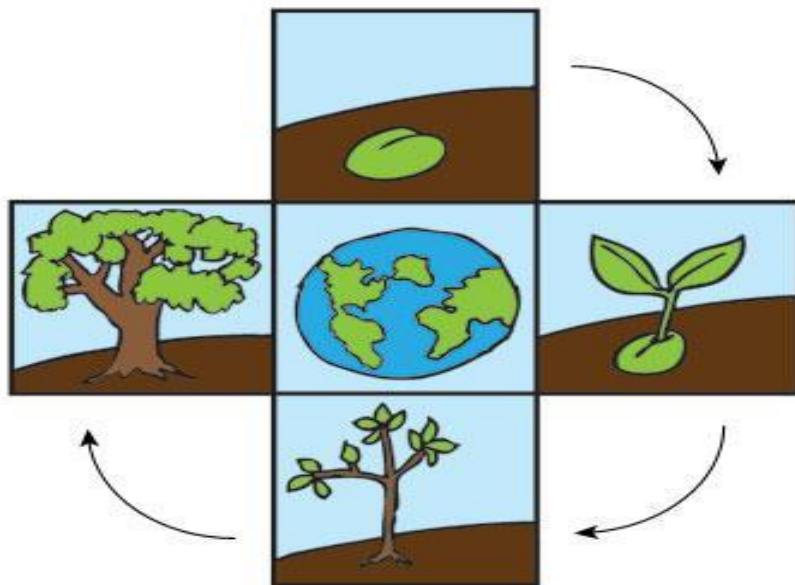
ARTIFICIAL LEAF

“ Artificial leaf “ is Like living leaves, this device can turn the energy of sunlight directly into a chemical fuel that can be stored and used later as an energy source.





COMPUTATIONAL THINKING



Technological Literacy



Energy, Ecology, and Sustainability



Global Thinking / Global Citizenship





Agriculture and Food Safety Challenges



Health and Medical Literacy

A Look at Entrepreneurs

In 2007, QuickBooks surveyed more than 1,300 small business owners. Here's how they responded:

How entrepreneurs say they would have been described as kids:



What's the most important characteristic for a successful entrepreneur?



Age when they started their first business:



Top reasons why people start their own businesses:

Be my own boss
40%

Turn my passion into a business
23%



85% of small business owners are sole proprietors



43% of entrepreneurs are the oldest of their siblings



More than 77% do not have business degrees

