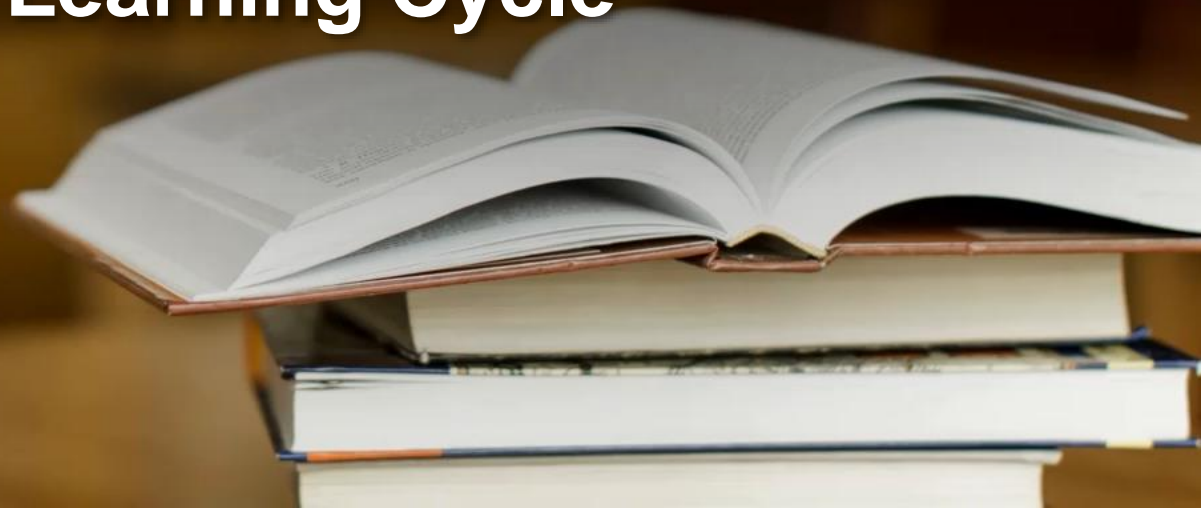


**5E Learning Cycle  
Problem-based Learning (PBL) Model**

# Key Ideas

## 5E Learning Cycle



# 5E learning cycle

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- Problem-based learning embedded within a serial constructivist model, the 5E learning cycle
  - Engage
  - Explore
  - Explain
  - Elaborate
  - Evaluate

Bybee, R.W. et al. (1989). *Science and technology education for the elementary years: Frameworks for curriculum and instruction*. Washington, D.C.: The National Center for Improving Instruction.

# Engage

- introduces the context
- sets the scene for the learning episode
- gives the learning relevance
- develops a curiosity about the ‘Big Idea’ or key concepts
- elicit students' pre ideas
- helps find out what the students already know and any misconceptions
- tells you where you need to start in building their understanding

# Explore

- students start to build conceptual understanding based on first-hand experience
- starting to answer the key questions
- not saying students have to discover everything themselves, they can be
  - guided
  - given important information and techniques to facilitate learning

# Explain

The teacher should involve students in devising explanations and further construction of ideas through reflection on what they discovered in the 'Explore' stage through carefully constructed questions

# Explain

this stage involves teacher input, only after the students have constructed as much understanding of a concept as they can, this stage further constructs the ideas, it can involve formalization of

- Terminology
- Definitions
- Models
- Analogies

# Elaborate

- Consolidates, deepens, and extends conceptual understanding through application
- students solve the problem/challenges so they can develop a deep understanding
- Takes thinking to the highest levels



# Evaluate

- Students communicate their solutions to the problem or understanding of the Big Idea through active writing appropriate to the context/problem
- assessment through varying approaches and tasks
- use of assessment rubrics
- peer, self, and tutor assessment/evaluation