



**BAKER COLLEGE**  
**STUDENT LEARNING OUTCOMES**

**ELM 2110 Elementary Mathematics I**  
**3 Semester Credit Hours**

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**Student Learning Outcomes and Enabling Objectives**

1. Explore making sense of problems and persevering in solving them.
  - a. Evaluate problem solving topics that are high-leverage for PK-6 teaching.
  - b. Use Polya's four step plan for problem solving.
  - c. Apply various problem-solving strategies.
  - d. Apply inductive reasoning in problem solving by finding patterns.
  
2. Demonstrate proficiency in understanding and applying fundamental concepts of sets and reasoning.
  - a. Evaluate fundamental topics that are high-leverage for PK-6 teaching.
  - b. Classify attribute pieces.
  - c. Use tables, lists, and Venn diagrams to represent relationships between sets.
  - d. Apply various operations on sets.
  - e. Investigate mathematical conjectures.
  - f. Evaluate mathematical arguments and proofs.
  
3. Explore the development of whole number representations and operations.
  - a. Evaluate whole number topics that are high-leverage for PK-6 teaching.
  - b. Explain the base-ten place value numeration system.
  - c. Compare numeration systems using multi-base pieces.
  - d. Identify models for addition, subtraction, multiplication, and division that lead to their algorithms.
  
4. Demonstrate proficiency in understanding concepts and techniques of number theories.
  - a. Evaluate number theory topics that are high-leverage for PK-6 teaching.
  - b. Explore divisibility through factors and multiples.
  - c. Analyze Greatest Common Factors (GCF) and Least Common Multiples (LCM) through various strategies.

5. Represent integers and integer operations using a variety of models.
  - a. Evaluate integer topics that are high-leverage for PK-6 teaching.
  - b. Explore various models and representations for integers.
  - c. Identify various models for addition, subtraction, multiplication, and division of integers.
  - d. Apply mental calculation skills for integer operations.
  - e. Represent integer relationships on a number line.

## **Big Ideas and Essential Questions**

### **Big Ideas**

- Problem solving
- Fundamental concepts
- Whole number place value
- Number theories
- Integer place value

### **Essential Questions**

1. How can problem solving skills help students persevere in difficult concepts?
2. How are fundamental concepts of sets and reasoning applied?
3. How is a whole number place value system developed?
4. How are concepts and techniques of number theories used?
5. How are models used to represent integers?

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These SLOs are not approved for experiential credit.

**Effective: Fall 2024**