

NCTM/California Standards

The following NCTM/California Standards are addressed in the teaching of the *Trio of Problems* Extended Lesson.

NCTM Algebra Standard for Grades 6-8

Understand patterns, relations and functions

- Represent, analyze, and generalize a variety of patterns with tables, graphs, words, and when possible, symbolic rules
- Relate and compare different forms of representation for a relationship

Use mathematical models to represent and understand quantitative relations

- Model and solve contextualized problems using various representations, such as graphs, tables, and equations

NCTM Problem Solving Standard for 6-8

- Build new mathematical knowledge through problem solving
- Solve problems that arise in mathematics and in other contexts
- Apply and adapt a variety of appropriate strategies to solve problems
- Monitor and reflect on the process of mathematical problem solving

NCTM Process Standards for School Mathematics

Communication

- Organize and consolidate their mathematical thinking through communication
- Communicate their mathematical thinking coherently and clearly to peers, teachers, and others
- Analyze and evaluate the mathematical thinking and strategies of others
- Use the language of mathematics to express mathematical ideas precisely

Connections

- Recognize and use connections among mathematical ideas
- Understand how mathematical ideas interconnect and build on one another to produce a coherent whole

Problem Solving

- Build new mathematical knowledge through problem solving
- Solve problems that arise in mathematics and in other contexts
- Apply and adapt a variety of appropriate strategies to solve problems
- Monitor and reflect on the process of mathematical problem solving

Reasoning and Proof

- Recognize reasoning and proof as fundamental aspects of mathematics
- Make and investigate mathematical conjectures
- Develop and evaluate mathematical arguments and proofs
- Select and use various types of reasoning and methods of proof

Representation

- Create and use representations to organize, record, and communicate mathematical ideas
- Select, apply, and translate among mathematical representations to solve problems

California Mathematical Reasoning Standards for 6-Algebra Readiness

1.0 Students make decisions about how to approach problems

2.0 Students use strategies, skills, and concepts in finding solutions

3.0 Students determine a solution is complete and move beyond a particular problem by generalizing to other situations.

References

California Department of Education, Mathematics Framework for California Public Schools, 2006

National Council of Teachers of Mathematics, Principles and Standards for School Mathematics, 2000