The Port Lesson:
Grade 5 Mathematics Modeling for a Local Context

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EXECUTIVE SUMMARY

The authors present a grade 5 mathematics lesson that resulted from a grant-funded teacher professional development experience, which promoted inquiry learning approaches such as problem-based, project-based, place-based learning, and the Common Core State Standards for Mathematics. A local industry was incorporated into the lesson to provide a real-world context. Design decisions and a description of how technology was utilized in the lesson are provided. Reflections from the teachers delivering the lesson and recommendations for adaptations for other contexts are included.

INTRODUCTION

Two of the authors of this chapter are teachers who participated in the Problem-based Learning and Common Core Standards for Mathematics (PBLCC) project led by the first author. The project was funded by Georgia's Improving Teacher

Quality initiative, which is administered by the University of Georgia. The project focused on a school system in southeastern Georgia that was eligible for the project based on a formula, which considers the number of students in the system receiving free or reduced lunch, and the number of teachers in the system defined as highly qualified. A teacher is considered *highly qualified* in this program, if he or she is teaching in an area in which he or she is certified. An assessment of need for this project was conducted in cooperation with the school system that included a discussion with administrators, a survey of teachers, and an examination of recent standardized test data.

PBLCC began during the summer of 2012 and continued until January 2013. PBLCC was a professional development experience for mathematics teachers in Glynn County Georgia designed to introduce teachers to the Common Core State Standards for Mathematics (CCSSM) (Common Core State Standards Initiative, 2012a); concepts from problem-based, project-based, place-based learning; and the integration of available instructional technologies. Eleven teachers from elementary and middle schools participated in PBLCC.

The teacher participants in PBLCC collaborated with each other and with university faculty experts in mathematics education, problem-based and place-based learning, and instructional design to create mathematics lessons that incorporated CCSSM and the other project concepts. The lessons developed during the summer were implemented during the fall 2012 semester by the teachers who created them. The teachers evaluated the success of the lessons using an action research approach. They presented their experiences at an end-of-project meeting attended by the participants and the university faculty members who participated in the workshop. The lesson highlighted in this chapter is the work of two grade 5 teachers, who co-developed the lesson and delivered it near the beginning of the academic year, during the fall of 2012.

BACKGROUND

The CCSSM include *Standards for Mathematical Practice* (Common Core State Standards Initiative, 2012b). The eight standards of practice "describe varieties of expertise that mathematics educators at all levels should seek to develop in their students" (2012b). The standard of practice most relevant to this project is *CCSS. Math.Practice.MP4 Model with mathematics:*

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle