Park City Mathematics Institute
Japanese Lesson Study 2004

Japanese Lesson Study Research Lesson
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WHAT IS IT?
A background paper and a lesson plan for introducing students to graphical representations of rate of change.

GRADE LEVEL/STRAND
Middle grades algebra

CLASS TIME
1 class period

MATERIALS:
- balloons
- post-it chart paper
- double-sided tape
- markers
- blank paper, pens/pencils at each desk
- graph/grid paper
- large, color cards for tables, students (student cards folded in $^1/_2$)
- worksheets for Activity #1 and #2
- various questions pre-written on poster paper
- 8 graphs from Part I enlarged on poster paper

Objective of Lesson Study
By engaging teachers in the collaborative work of designing a lesson, teachers can build a sense of community with their peers, increase their knowledge of mathematics, increase their understanding of the curriculum, add to their strategies for teaching a particular concept and in general, help them learn how students come to understand and process mathematics. The process itself is the goal; the lesson is a by-product that can be used as a resource.

Mathematical Objectives of the Lesson

Students should be able to

- explain how graphs represent change and can tell "stories" with graphs
- create a real-life scenario for a given graph
- sketch a graph using a description of a situation ("a story")
- label graphs using appropriate units for a situation
- recognize that one graph can describe more than one situation
- describe rate of change in a graph, the relationship between independent and dependent variables, and explain how this relationship is represented in the graph