Lesson Study: What's the Best Deal?

Taken from: *Navigating through Algebra Grades 3-5, NCTM, pp. 33-36*

By:
Pat Goodheart
Donald Reinecker
Karen Miller
Pauline McAfee
Cristina Orantes
Ellen Richard

Misconceptions

- Reasoning incorrectly about a sequence of numbers on the basis of incomplete understanding of infinite growth
- Understanding simple patterns but verbalizing/writing is difficult
- Difficulty communicating simpler mathematical patterns
- Understanding generalizations
- Transitioning from numbers to shapes
- Showing their work within multiple representations

Misconceptions

- Vocabulary
- Understanding rules
- Understanding the equal sign
- Understanding properties
- Reading equations from left to right as well as right to left/ability to work backwards
- Transitioning from concrete to abstract
- Stepping out of comfort zone to solve problems

Misconceptions

- Leaping from arithmetical calculations to algebraic thinking in the early grades
- Emphasizing paper-pencil proficiency with computational skills and learning math by memorizing rules

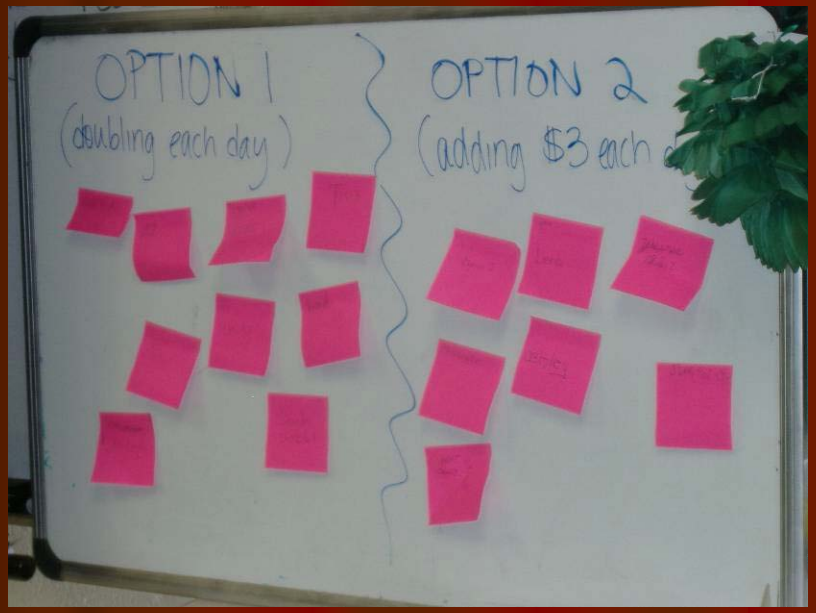
What's the Best Deal?

From *Navigating Through Algebra in Grades 3-5*

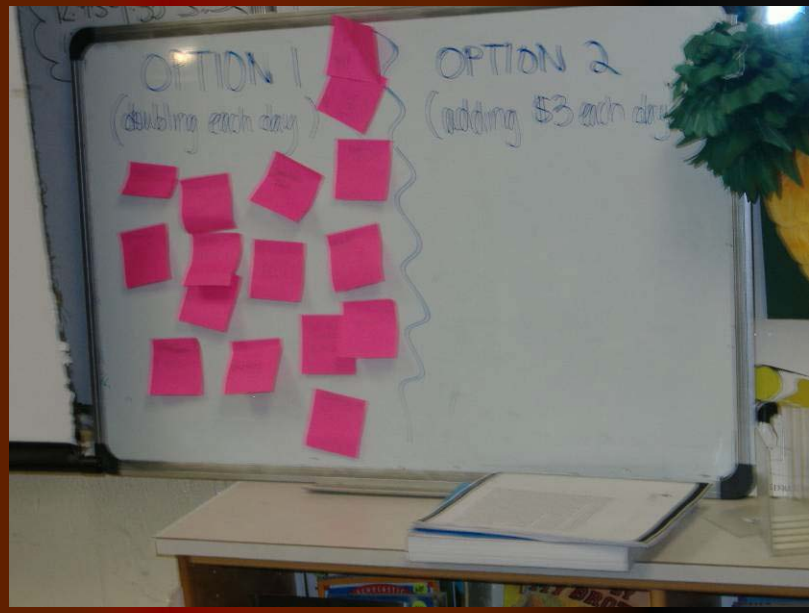
- Goal: Students will identify and describe situations with constant or varying rates of change and compare them
- SOLs Addressed:
  - 5.20 Students will analyze the structure of numerical and geometric patterns (how they change or grow) and express the relationship using words, tables, graphs or a mathematical sentence. Concrete materials and calculators will be used.
  - 5.21 A. Students will investigate and describe the concept of variable.
  - B. Use a variable expression to represent a given verbal quantitative expression involving one operation, and
  - C. Write an open sentence to represent a given mathematical relationship, using a variable.
  - **POS Addressed:** 5.6.1.3; 5.6.1.2

Outline of the lesson

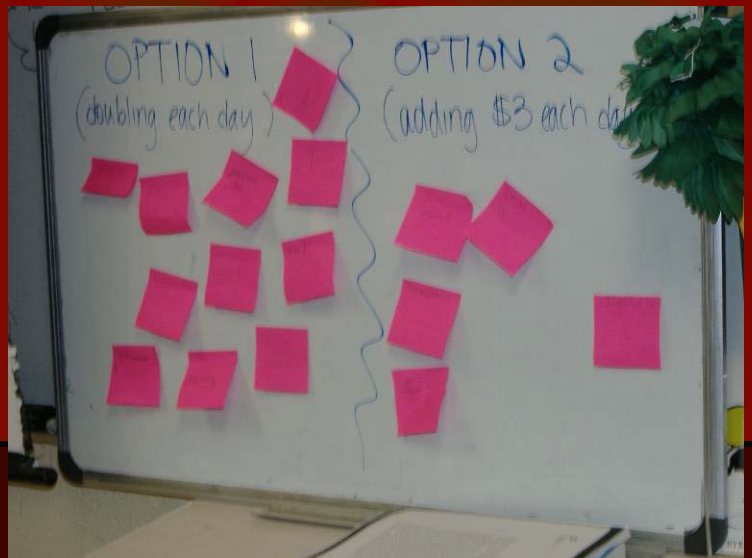
- Reflect on book, *One Grain of Rice*
- Reviewed concept of doubling shown in *One Grain*
- Present two options – Option 1: amount doubles each day; Option 2: $3 dollars more added each day
- Have students vote on their choices at three times during lesson – note changes



1st Vote Results



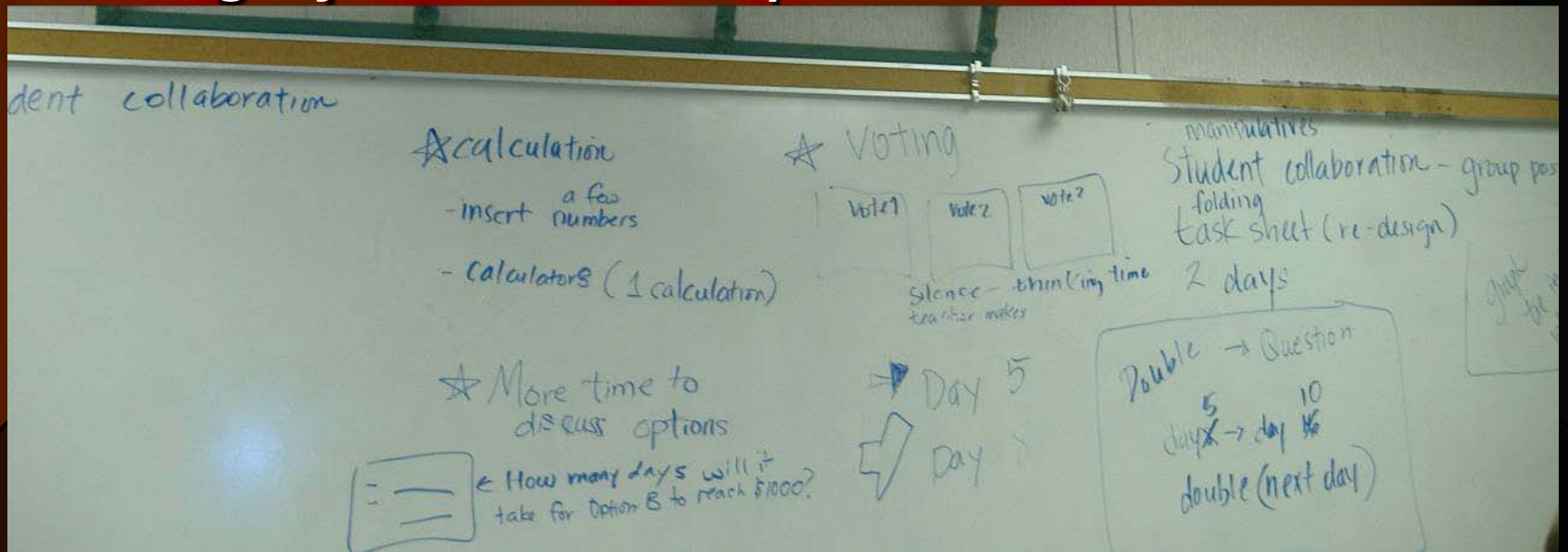
3rd Vote Results



2nd Vote Results

Revisions Made after Lesson

- Task sheet
- Adding graph as a final connection
- Manipulatives, calculators
- Student collaboration → group poster
- Voting system revamped



In Conclusion…

- Students were better able to verbalize and write generalizations between constant and varying rates of change
- Students saw the power of doubling

Thank You!