

HEIDI LYNE
JOLIET JUNIOR
COLLEGE
JOLIET, ILLINOIS

Math in Context

Systems of Linear Equations

Penny Prediction

- ▶ Pennies minted before 1982 weigh approximately 3g and are made primarily of copper. Pennies minted after 1982 weigh approximately 2.5g and are made more of zinc.
- ▶ I have 14 pennies in a 'bag'.
- ▶ ***How many of each type are there?***

Available equipment – plastic scale and container of dominoes

(We know dominoes are approximately 2.885g each)

Linear Programming, Graphing

Cookie Dough Kits

- ▶ Your school's band decides to sell cookie dough kits to raise money for a spring field trip. There is a Family Times Cookie Dough kit that you can buy for \$7 and sell for \$12, and a Baker's Delight kit that you can buy for \$15 and sell for \$25. The PTA will lend you \$2100 to buy supplies. The company selling you the kits informs you that a school your size can expect to sell at most 220 kits.
- ▶ *How many of each type of kit should your band purchase to raise the most money?*
- ▶ *What is the most money that your band can raise?*

Math in Context in Finite Math

- ▶ Begin chapter with application problem
- ▶ Students draw out their own knowledge
- ▶ Piece together recollections and strategies until application is complete

- ▶ Assign a second application
- ▶ Define key terms on review
- ▶ Lial, 11th edition

What's the Point: Personal Notes

- ▶ Working through the entire application first allows students to assess their own deficiencies up front.
- ▶ Once established, each individual can identify pertinent personal resources and game plan their time.
- ▶ The students work together to extend past relevant applications to the next level of thinking.

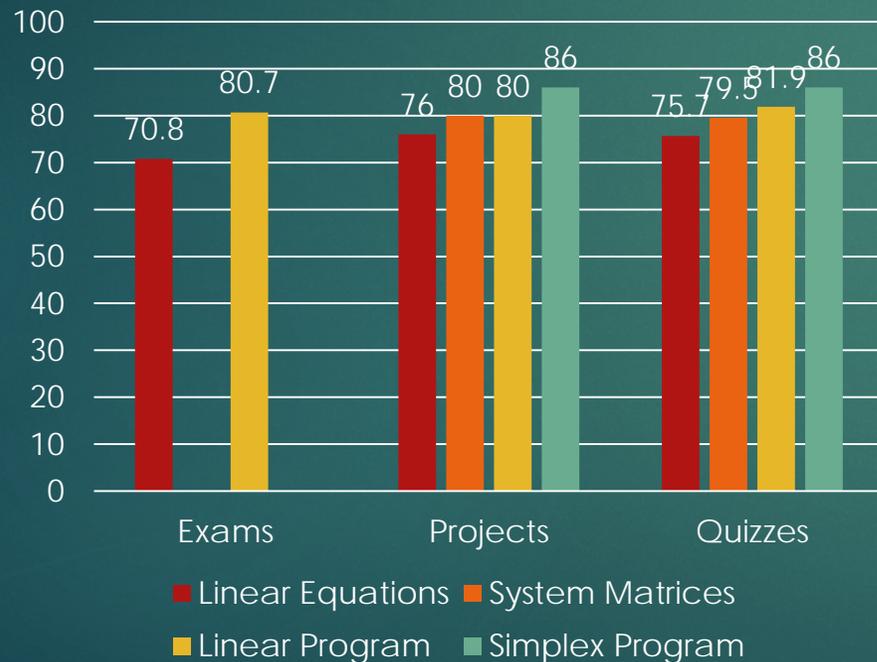
Observable Changes

- ▶ Attendance is *nearly* perfect
- ▶ Quiz time allotment has decreased
 - ▶ 25min to 15min for 7 questions
 - ▶ Time for more examples
- ▶ Exams *are* completed in a 50min class!
- ▶ Student camaraderie has markedly increased

Quantifiable Results

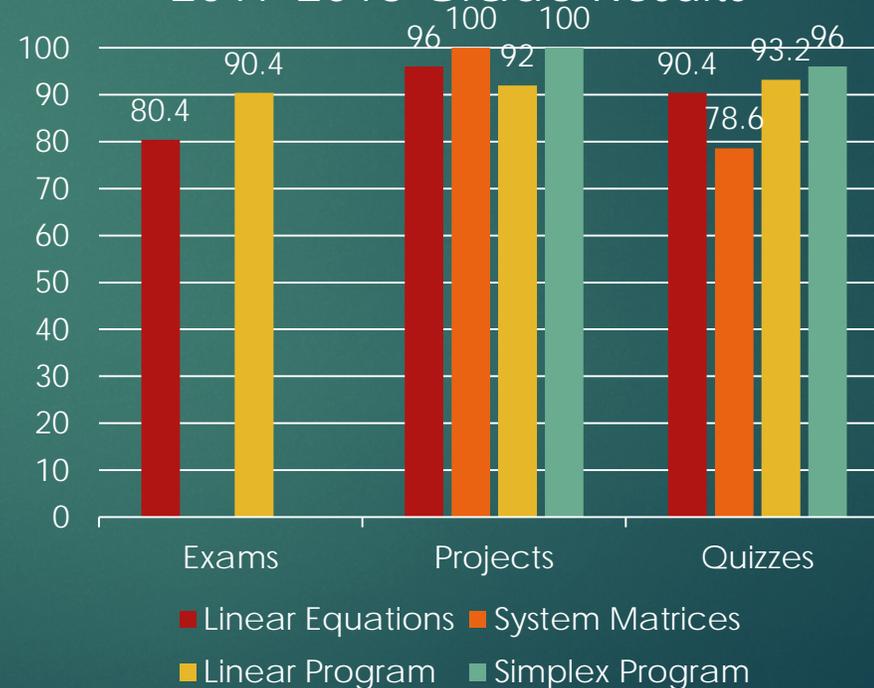
Pre-Experiment

2015-2016 Grade Results



Experiment

2017-2018 Grade Results



Finite Math Class Demographics

Joliet Junior College

- ▶ Prerequisite: College Algebra
- ▶ Students' Majors: Business, Agriculture, other 'shoppers'
- ▶ Joliet Junior College Fast Facts
 - ▶ 14726 students
 - ▶ 32% full time
 - ▶ 55% female
 - ▶ 42% minority
 - ▶ 28% Hispanic
 - ▶ 23 average age

Common Core State Standards Correlated to *Mathematics in Context*

- ▶ Make sense of problems and persevere in solving them.
- ▶ Reason abstractly and quantitatively.
- ▶ Construct viable arguments and critique the reasoning of others.
- ▶ Model with mathematics.
- ▶ Use appropriate tools strategically.
- ▶ Attend to precision.
- ▶ Look for and make use of structure.
- ▶ Look for and express regularity in repeated reasoning.

Math in Context in Finite Math

- ▶ “Personalized learning is designed to accelerate student learning by tailoring instruction to individuals’ needs and skills as they go about fulfilling curricular requirements.”
(Kallick and Zmuda, 2017)
- ▶ “Both teachers and students agree that the use of values clarification techniques contributes to making the learning environment more enjoyable and motivating.”
(Lisievic, 2016)