

# Simulations for Teacher Preparation: Improving Pedagogical Content Knowledge and Literacy in Mathematics

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# Simulation Development

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- Developed by Lockheed Martin Corporation
- Designed in collaboration with district and university personnel



# LMCO Simulation



# Pedagogical Content Knowledge

- Details knowledge teachers need for teaching mathematics conceptually
- Includes disciplinary literacy
- Addresses knowledge of curriculum
- Informs instructional decision making
- Identifies error patterns and misconceptions
- Considers assessment as well as instruction



# Example from Algebra I

- A new company called TextForFun (or TFF for short) is offering 2 new plans. Plan A is \$50 a month for unlimited texts. Plan B costs \$25 a month, plus 15 cents per text. If you average 200 text messages per month, which plan should you choose?

David is training for a marathon. He writes down the time and distance for each training run and then records the data on a scatter plot. He has drawn a line of best fit on the scatter plot.



Which statement best expresses the meaning of the slope as a rate of change for this line of best fit?

- A. The slope represents the number of miles he will have to run to finish the marathon.
- ★ B. The slope represents the average speed, in miles per hour, of his training runs.
- C. The slope represents the number of hours he will need to finish the marathon.
- D. The slope represents the distances, in miles, that he ran while he was training.

# Simulation for PCK in Mathematics

- Includes multiple content areas in mathematics
  - Calculating slope
  - Solving linear equations
  - Graphing quadratic functions
- Also includes science content areas



# Project Team

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