



NATIONAL COUNCIL OF  
TEACHERS OF MATHEMATICS

PREMIER MATH EDUCATION EVENTS

Dallas | February 5–6, 2016

# Effective Teaching with *Principles to Actions*: Implementing College- and Career-Readiness Standards



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Align your classroom instruction to college- and career-ready standards in mathematics to meet the learning needs of all students.

- Share tools and classroom strategies with your peers.
- Gain research-based learning from the latest educational resources, including *Principles to Actions*.
- Learn from experts in mathematics education.
- Be empowered with the skills to effectively teach core mathematics concepts to your students.

**Bring the whole team: significant group savings available.**



Based on  
*Principles to Actions:*  
*Ensuring Mathematical  
Success for All*



For more information visit [nctm.org/institutes](http://nctm.org/institutes)



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## features

### 218 Royalty, Racing, and Rolling Pigs

*Randall E. Groth*

Examine how types of statistical variability recommended in GAISE can be taught alongside the data displays recommended in CCSSM.

### 230 Making Fractions Meaningful

*Kelly K. McCormick*

Sharing submarine sandwiches while touring New York City provides a powerful problem scenario for both elementary school students and preservice teachers to deepen their understanding of foundational concepts.

### 240 Unpacking Referent Units in Fraction Operations

*Randolph A. Philipp  
and Casey Hawthorne*

Using cups of sugar, this sequence of division tasks for K–grade 12 and adult learners highlights how seeing “wholes” results in fewer “holes” in reasoning.

### 248 Creating Math Talk Communities

*Erin L. Waggoner*

Use these five strategies to encourage meaningful classroom discussions.



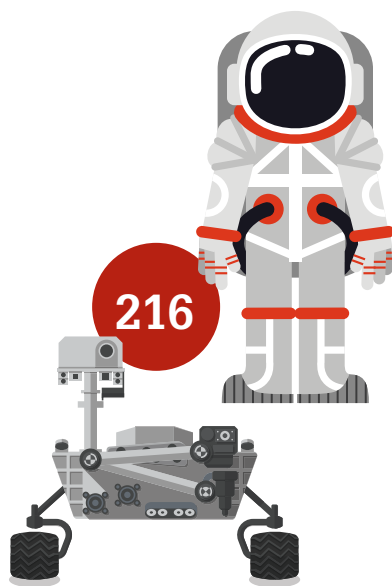
248



WAVEBREAKMEDIA/THINKSTOCK

## departments

- 205** [news&views](#)  
Common Core brief:  
The fraction progression
- 208** [problem solvers:  
problem](#)  
Which lake is *bigger*?
- 213** [problem solvers:  
solutions](#)  
Math is going to the dogs
- 216** [math by the month](#)  
Space adventures
- 255** [iSTEM](#)  
Investigating bridge design
- 261** [reviewing and viewing](#)  
*Essential Understanding*  
and more
- 264** [postscript](#)  
Volume is a treat



more **4U**

Full-size map for "Problem Solvers:  
Problem: Which lake is bigger?"  
**p. 208**

Instructional plan and student activity  
sheets for "iSTEM: Investigating bridge  
design," **p. 255**

## remainders

- 239** [call for manuscripts:  
Write for a department:  
Views](#)
- 247** [call for chapters:  
2017 Annual Perspectives  
in Mathematics Education](#)

## in the next issue

- +** A meaningful *driving question*, linked to a piece of literature, motivates kindergarten children to engage in all five stages of the PPDAC data cycle. Read about it in "Practical Problems: Introducing Statistics to Kindergartners" by Mairéad Hourigan and Aisling Leavy.