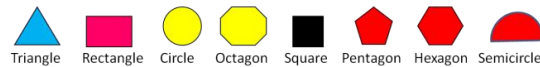




RICE

Using Coffee Stirrers to Develop and Test Geometric Concepts

2-D Shapes



3-D Shapes

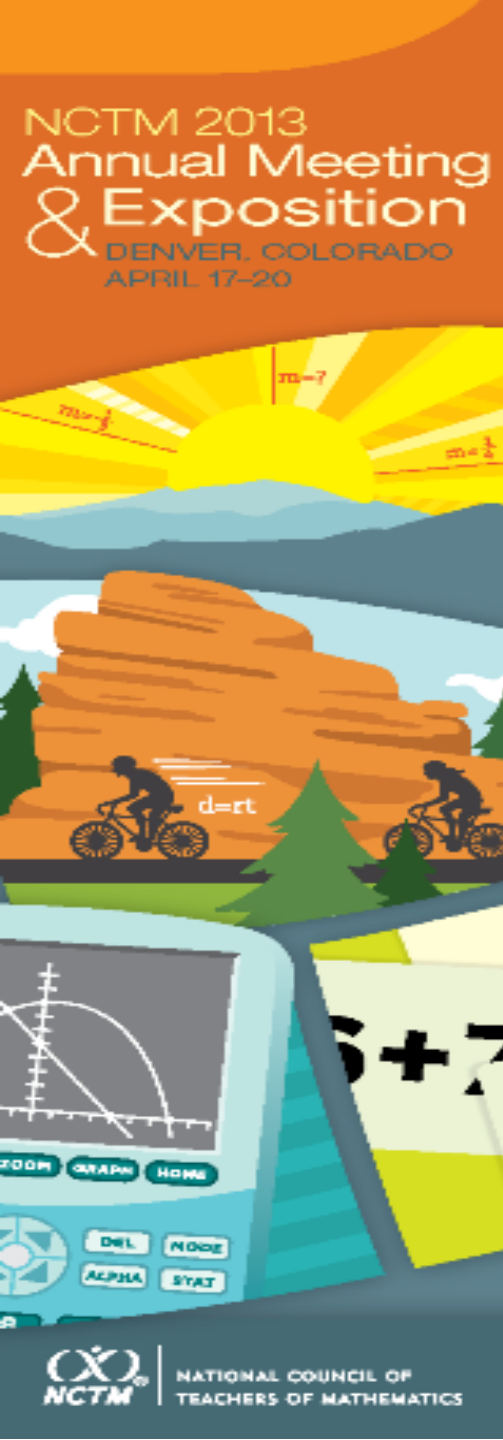


Rice University School Mathematics Project
Houston, Texas <http://rusmp.rice.edu>

Susan Troutman
troutman@rice.edu
Associate Director for Secondary Programs

Carolyn L. White
clwhite@rice.edu
Associate Director for Elementary and Intermediate Programs

Presentation Number 497 White/Troutman



Presentation Number 497 White/Troutman

Rate this presentation on the conference app. **www.nctm.org/confapp**

Download available presentation handouts from the Online Planner!
www.nctm.org/planner

Join the conversation! Tweet us using the hashtag **#NCTMDenver**



All students in grades 3-5 should be able to:

- identify, compare, and analyze attributes of two-and three-dimensional shapes
- develop vocabulary to describe the attributes
- classify two-and three-dimensional shapes according to their properties
- develop definitions of classes of shapes such as triangles and pyramids
- make and test conjectures about geometric properties and relationships
- develop logical arguments to justify conclusions



Level 0 Visual level

Nonverbal stage-students judge shapes by the way they look

Level 1 Descriptive level

Identify shapes according to properties

Level 2 Informal Deduction level

Students are able to see the interrelationships between figures



RICE

Two-dimensional shapes

- Sort plane shapes
- Make one of the shapes with the coffee stirrers
- Can all shapes be made with coffee stirrers?

Let's explore polygon concepts

- What is a polygon?
- Polygon Vocabulary



RICE

Angles and Triangles

- Types of angles
- Types of triangles



RICE Special Types of Quadrilaterals

- Parallelogram
- Rectangle
- Square
- Rhombus
- Kite



RICE

Combining Shapes

Can you make a shape by combining one or more shapes using coffee stirrers?



RICE

Testing Conjectures

- *The Greedy Triangle* by Marilyn Burns
- Stick Figures- Cooperative learning
- Two-Dimensional Shapes Challenge



RICE

Three-Dimensional Solids

Let's Build



RICE

Bibliography

- Burns, Marilyn. The Greedy Triangle. New York, NY: Scholastic INC, 1994.
- Erickson, Tim. Get It Together Math Problems for Groups. Berkeley, CA: Lawrence Hall of Science, 1989.
- The National Council of Teachers of Mathematics Principles and Standards for School Mathematics. Reston, VA: NCTM, 2000.



RICE

**Rice University
School Mathematics
Project**

<http://rusmp.rice.edu>

RICE UNIVERSITY SCHOOL MATHEMATICS PROJECT

[HOME](#)[ABOUT RUSMP](#)[WHAT WE DO](#)[PRESENTATIONS](#)[SUMMER CAMPUS PROGRAM](#)[NETWORKING
CONFERENCES](#)[AT LARGE](#)[PUBLICATIONS](#)[RESEARCH AND
EVALUATION](#)[CURRICULUM](#)[CALENDAR](#)[PHOTOS](#)[REGISTER](#)[LINKS](#)

Presentations At Large:

The following presentations were given by RUSMP directors, teachers and staff at local, state, or national conferences:

2012

[Put On Your Math Goggles! Viewing PK-4 Mathematics Using the Lens of the Visual Arts and Children's Literature](#): Dr. Robin Ward, Conference for Advancement of Mathematics Teaching, Houston, TX (July 2012)

[Basic Student Understanding Through Effective Questioning\(handout\)](#): Karen Hardin, Conference for Advancement of Mathematics Teaching, Houston, TX (July 2012)

[Energize Your Math Class with Numeration Games and Activities \(handout\)](#): Linda Jensen and Carolyn White, Conference for Advancement of Mathematics Teaching, Houston, TX (July 2012)

[Implementing Interactive Math Notebooks](#): Kimberly Riggins, Conference for Advancement of Mathematics Teaching, Houston, TX (July 2012)

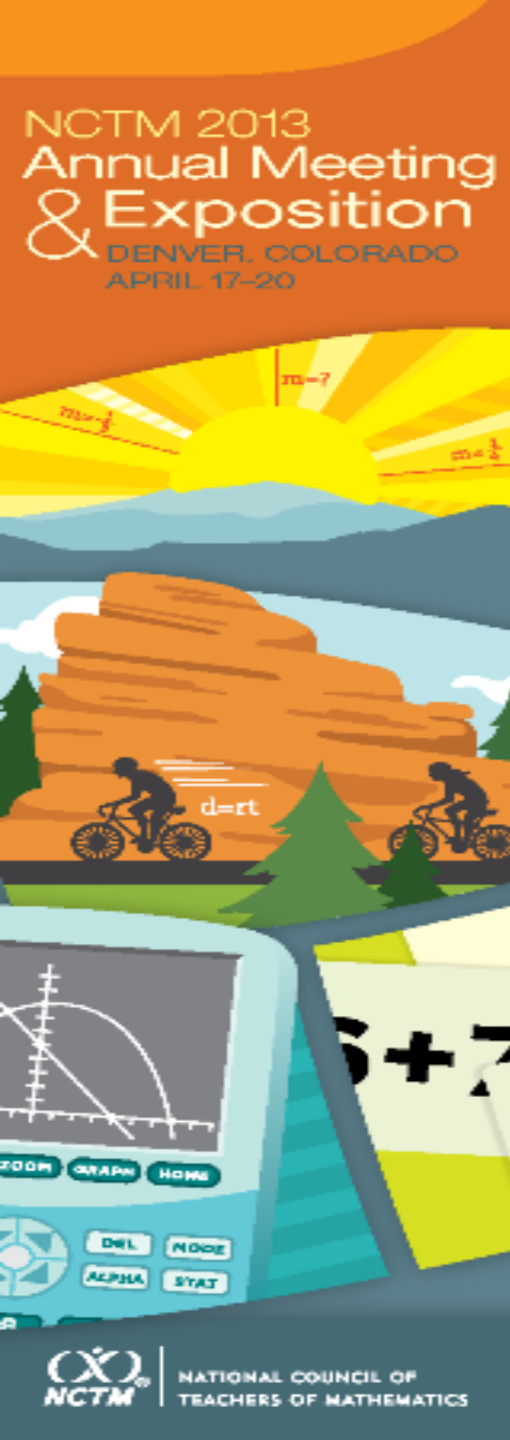
[Back to the 3R's: Reading, wRiting, and aRithmetic](#): Karen Barnes, Conference for Advancement of Mathematics Teaching, Houston, TX (July 2012)

[Addition of Fractions: The Unrecognized Problem](#): Art Howard, Conference for Advancement of Mathematics Teaching, Houston, TX (July 2012)

[Possibilities with Probability](#): Susan Troutman and Betsy Shipper, Conference for Advancement of Mathematics Teaching, Houston, TX (July 2012)

[Exploring Finite Differences Using Multiple Representations](#): Dr. Anne Papakonstantinou and Richard Parr, Conference for Advancement of Mathematics Teaching, Houston, TX (July 2012)

[Using Parametric Equations to Model Motion](#): Cedric French, Conference for Advancement of Mathematics Teaching, Houston, TX (July 2012)



Presentation Number 497 White/Troutman

Rate this presentation on the conference app. www.nctm.org/confapp

Download available presentation handouts from the Online Planner!
www.nctm.org/planner

Join the conversation! Tweet us using the hashtag **#NCTMDenver**