TI-NSPIRED FOR THE MIDDLE GRADES: *COMMON CORE-BASED INVESTIGATIONS*

Dr. Ann M. Schlemper

National Council of Teachers of Mathematics

Annual Conference

April 18, 2013

Denver, CO

ABOUT MATH NSPIRED

Combining classroom-ready lessons with self-paced online professional development resources, Math Nspired utilizes the power of TI-Nspire™ technology to help students build a deeper understanding of the math concepts that research shows are tough to learn.*

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ABOUT MATH NSPIRED

The lessons are grouped into content units and sequentially ordered within each unit to develop specific mathematical concepts and skills.

Some of the lessons correspond to one or more of the Standards for Mathematical Practice included in the Common Core State Standards for Mathematics that students are expected to develop as part of their study of mathematics.

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COMMON CORE STANDARDS: MATHEMATICAL PRACTICES

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

COMMON CORE STANDARDS: MATHEMATICAL CONTENT (MIDDLE GRADES)

Grade 6-7

- Ratios & Proportional Relationships
- The Number System
- Expressions & Equations
- Geometry
- Statistics & Probability

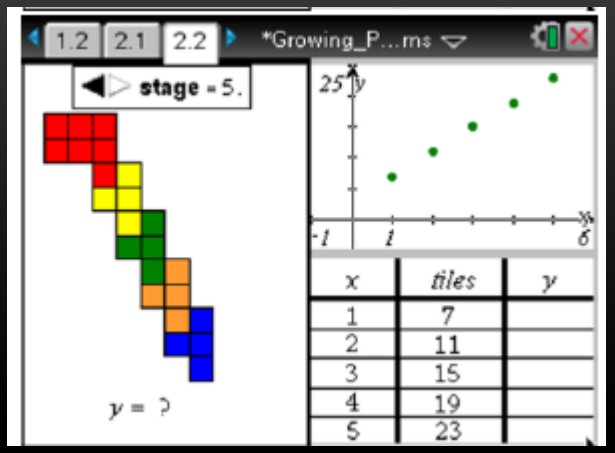
Grade 8

- The Number System
- Expressions & Equations
- Functions
- Geometry
- Statistics & Probability

ACTIVITIES

- Growing Patterns
- Getting Around Area
- Definition of Function
- Volume Relationships
- Systems of Equations
- Slices

GROWING PATTERNS: MATH OBJECTIVES

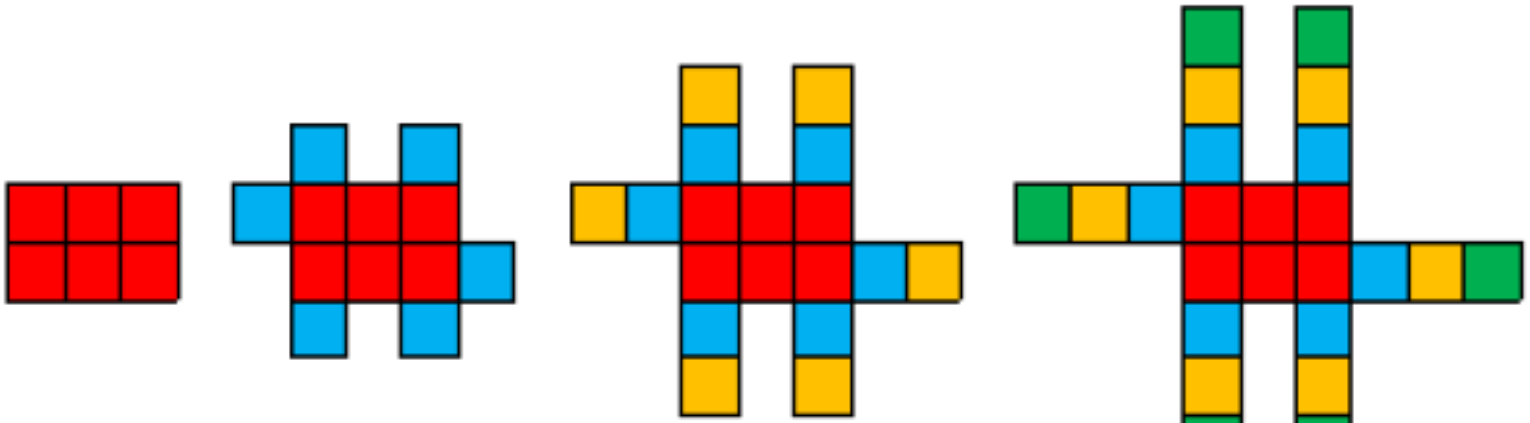


Students will:

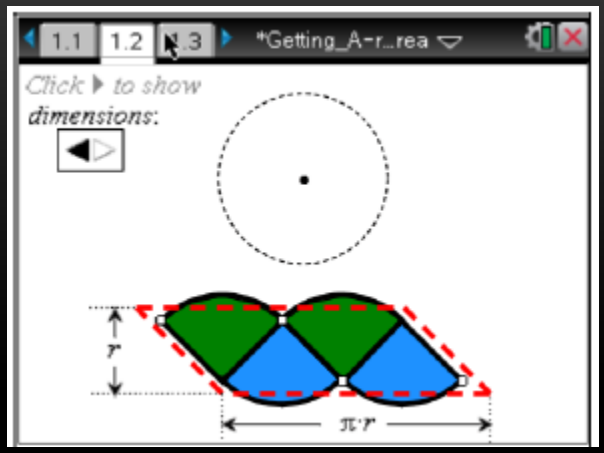
- Use symbols to represent unknowns and variables.
- Look for patterns and represent generalizations
- Represent relationships among quantities using visual models, tables, graphs, and words.
- Define, evaluate and compare functions (CCSSM).
- Reason abstractly and quantitatively (CCSS Mathematical Practice).
- Look for and make use of structure (CCSS Mathematical Practice).

SAMPLE ANSWER TO #6

y = 6x.



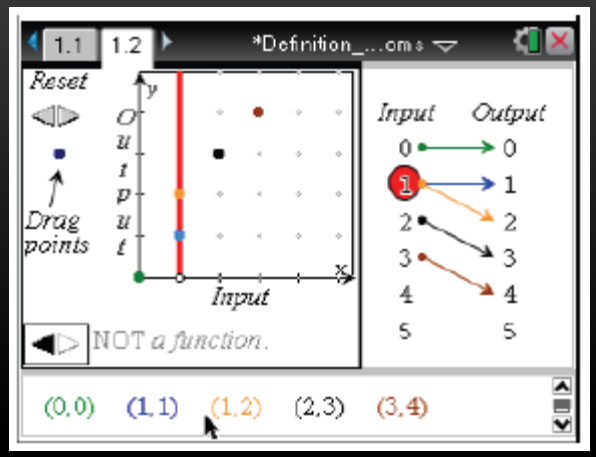
GETTING AROUND AREA



Math Objectives

- Students will give an informal derivation of the relationship between the circumference and area of a circle (CCSS).
- Students will construct viable arguments and critique the reasoning of others (CCSS Mathematical Practice).
- Students will reason abstractly and quantitatively (CCSS Mathematical Practice).

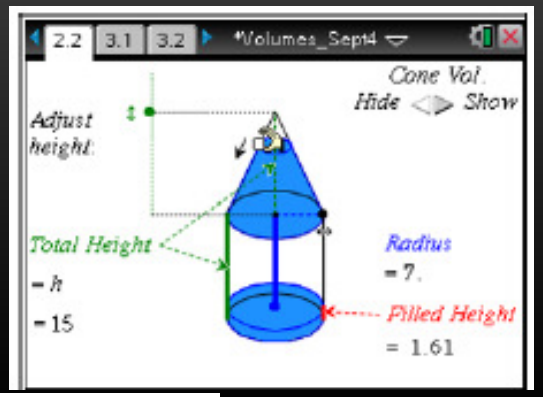
DEFINITION OF FUNCTION: MATH OBJECTIVES



Students will:

- Determine the domain and range of relationships given as a set of ordered pairs.
- Determine whether or not a relationship is a function or not using the definition.
- Verify that relationships are functions or not by examining the relationship graphically and in a table.
- Define, evaluate, and compare functions (CCSS).
- Reason abstractly and quantitatively (CCSS Mathematical Practice).
- Construct viable arguments and critique the reasoning of others (CCSS Mathematical Practice).
- Look for and make use of structure (CCSS Mathematical Practice).

VOLUME RELATIONSHIPS



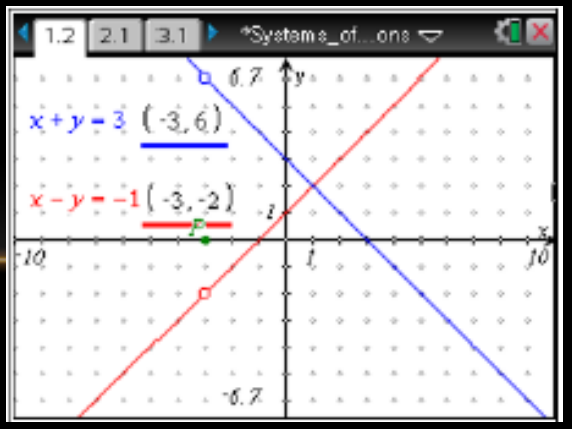
Math Objectives

- Students will determine the formula for the volume of a cylinder.
- Students will relate the volume of a cylinder to the volume of a cone in order to determine the formula for the volume of a cone.
- Students will relate the volume of a cylinder to the volume of a sphere in order to determine the formula for the volume of a sphere.
- Students will calculate the volume of a cylinder, cone, and sphere with given dimensions.
- Students will reason abstractly and quantitatively (CCSS Mathematical Practice).
- Students will look for and make use of structure (CCSS Mathematical Practice).

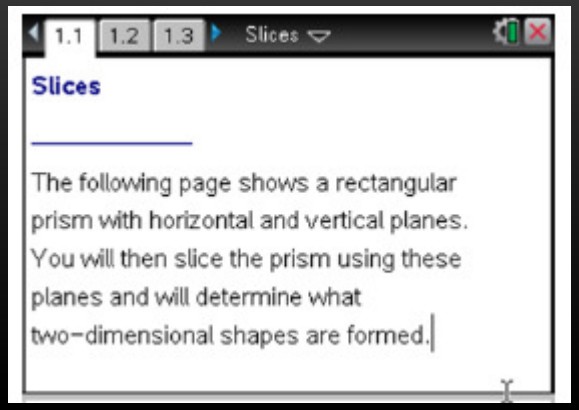
Math Objectives

- Students will recognize a system of equations.
- Students will know the definition of a system of an equation.
- Students will determine solutions to a system of equations graphically.
- Students will verify solutions to a system algebraically.
- Students will make sense of problems and persevere in solving them (CCSS Mathematical Practice).
- Students will look for and make use of structure (CCSS Mathematical Practice).
- Students will analyze and solve pairs of simultaneous linear equations (CCSS).
  - ➢ Students will understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
  - ➢ Students will solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations.

SYSTEMS OF EQUATIONS



SLICES



Math Objectives

- Students will predict what two-dimensional shapes are formed when three-dimensional figures are cut by horizontal and vertical planes.
- Students will draw, construct, and describe geometrical figures and describe the relationships between them (CCSSM).
- Students will reason abstractly and quantitatively (CCSS Mathematical Practice).
- Students will look for and make use of structure (CCSS Mathematical Practice).
- Students will make sense of problems and persevere in solving them (CCSS Mathematical Practice)/

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