Presentation Technology - Fifth

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Author: Robert Prater
Based on unit by:
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VITAL INFORMATION

Subject(s)	Mathematics
Grade/Level	Grade 5
Time Required	Two weeks
Objective(s)	Develop appropriate use of online search tools. Practice collaborative tools for team online research methods.
Summary	Using an available "cloud collaborative" network, students will practice cooperative learning.

IMPLEMENTATION

Learning Activities

Resources and Unit Handouts

ASSESSMENT & STANDARDS

Standards

Standards addressed by entire unit
Display: Collapse All Expand All

AZ- Arizona Educational Technology Standard

Grade Range: Pre-K to 6th Grade

Strand:
Strand 2: Communication and Collaboration

Concept:
Concept 1: Effective Communications and Digital Interactions
Communicate and collaborate with others employing a variety of digital environments and media.

Grade:
Grade 5

Performance Objective:
PO 2. Explain and demonstrate the safety and etiquette of digital environments to communicate with intended audiences.

Strand:
Strand 3: Research and Information Literacy

Concept:
Concept 1: Planning Plan strategies to guide inquiry using technology.

Grade:
Grade 5

Performance Objective:

PO 1. Predict and use key words and phrases that narrow or broaden information searches.

Performance Objective:
PO 2. Predict which information sources will provide the desired data.

Concept:
Concept 2: Processing Locate, organize, analyze, evaluate, synthesize and ethically use information from a variety of sources and media.

Grade:
Grade 5

Performance Objective:
PO 1. Locate and synthesize information to revise search strategies.

Performance Objective:
PO 2. Select and use authoritative primary and/or secondary sources.

Performance Objective:
PO 3. Evaluate between fact and opinion, bias, inaccurate and misleading information by consulting more than one source.

Performance Objective:
PO 4. Use appropriate digital tools to synthesize research information and develop new ideas.

AZ- Common Core State Standards (2012)

Subject: English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects

Grade: Grade 5 students:

Content Area: Informational Text K-5

Strand: Reading

Domain: Integration of Knowledge and Ideas

Standard:
7. Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

Strand: Speaking and Listening

Domain:
Comprehension and Collaboration

Standard:

2. Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

Assessment/Rubrics

Algebra and Rational Numbers: Ratio, Proportion, and Percent

created with taskstream

Author: Robert Prater
Based on unit by:
Date created: 04/18/2013 4:37 PM UMST ; **Date modified:** 04/18/2013 9:15 PM UMST

VITAL INFORMATION

Subject(s)	Mathematics
Grade/Level	Grade 7
Time Required	Three weeks, including Reviews and Quizes
Objective(s)	A. Write ratios as fractions and find unit rates. B. Use ratios and proportions to solve problems, including scale drawings. C. Write decimals and fractions as percents, and vice versa. D. Estimate and compute with percents. E. Find simple probability.
Summary	The concept of proportionality is the foundation of many branches of mathematics, including geometry, statistics, and business math. Proportions can be used to solve real-world problmes dealing with scale drawings, indirect measurement, predictions, and money.

IMPLEMENTATION

Learning Activities

1. Ratios and Rates
2. Reading Mathematics: Making Comparisons
3. Using Proportions
4. Scale Drawings and Models
5. Fractions, Decimals, and Percents
6. Using the Percent Proportion
7. Practice Quiz 1
8. Finding Percents Mentally
9. Using Percent Equations
   (see also Spreadsheet Investigation: Compound Interest)
10. Percent of Change
11. Practice Quiz 2
    Lessons 6-6 through 6-8
12. Algebra Activity: Taking a Survey
13. Probability and Predictions
14. Ratio, Proportion, and Percent: Review & Test

Resources and Unit Handouts

- Materials and resources:
  Textbook: Pre-Algebra
  Unit 2, Chapter 6
  Glenco McGraw-Hill
  www.pre-alg.com

ASSESSMENT & STANDARDS

Standards

Standards addressed by entire unit

Display: Collapse All Expand All

AZ- Common Core State Standards (2012)

Subject: Mathematics

Grade: Grade 7

Domain: Ratios and Proportional Relationships 7.RP

Cluster:
Analyze proportional relationships and use them to solve real-world and mathematical problems.
7.RP.1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour.

7.RP.2. Recognize and represent proportional relationships between quantities.

7.RP.2.a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

7.RP.2.b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

7.RP.2.c. Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.

7.RP.2.d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.

7.RP.3. Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Area: Analyze proportional relationships and use them to solve real-world and mathematical problems.

Standard:
7.RP.1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks ½ mile in each ¼ hour, compute the unit rate as the complex fraction ½/¼ miles per hour, equivalently 2 miles per hour.

Standard:

7.RP.2. Recognize and represent proportional relationships between quantities.
7.RP.2.a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

7.RP.2.b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

7.RP.2.c. Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.

7.RP.2.d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.

Standard:
7.RP.3. Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Domain: Expressions and Equations 7.EE

Cluster:
Use properties of operations to generate equivalent expressions.
7.EE.1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

7.EE.2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."

Cluster:
Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
7.EE.3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

7.EE.4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic

solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.

Domain: Geometry 7.G

Area: Draw, construct and describe geometrical figures and describe the relationships between them.

Standard:
7.G.1. Solve problems involving scale drawings of geometric figures, such as computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

Standard:
7.G.2. Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

Standard:
7.G.3. Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

Domain: Standards for Mathematical Practice 7.MP

Cluster:
7.MP.1. Make sense of problems and persevere in solving them.
7.MP.2. Reason abstractly and quantitatively.

7.MP.3. Construct viable arguments and critique the reasoning of others.

7.MP.4. Model with mathematics.

7.MP.5. Use appropriate tools strategically.

7.MP.6. Attend to precision.

7.MP.7. Look for and make use of structure.

7.MP.8. Look for and express regularity in repeated reasoning.

Area: Standards

Standard:
7.MP.1. Make sense of problems and persevere in solving them.

Standard:
7.MP.2. Reason abstractly and quantitatively.

Standard:
7.MP.3. Construct viable arguments and critique the reasoning of others.

Standard:
7.MP.4. Model with mathematics.

Standard:
7.MP.5. Use appropriate tools strategically.

Standard:
7.MP.6. Attend to precision.

Standard:
7.MP.7. Look for and make use of structure.

Standard:
7.MP.8. Look for and express regularity in repeated reasoning.

Assessment/Rubrics

Lesson Plan
Content Area: Language Arts
8 Week Period: 1/7/13 - 3/1/13

Teacher Name: Bojorquez/ Math teacher

Location: Intervention Room/classroom

Common Core: 7.NS.3. Solve real-world and mathematical problems involving the four operations with rational numbers.
Standard: Math
Strand: Number Sense
Concept 2: Number sense is the understanding of numbers and how they relate to each other and how they are used in specific context or real-world application. It includes an awareness of the different ways in which numbers are used, such as counting, measuring, to use numbers and number relationships to acquire basic facts, to solve a wide variety of real-world problems . It includes an awareness of the different types of numbers such as, whole numbers, integers, fractions, and decimals and the relationships

Intervention Objectives for pull out/push in: add/ subtract/multiply/divide (as you go teach math vocabulary)

Level 1: Continue Actions until mastered:
Identify key terms in story problems (sum, difference, more than, etc); understanding

Act. 1: will practice 2 to 3 problems of subtraction with and without regrouping. (move to multiplication rules and multiply after subtract mastered.

Act. 2 teach the 5/9 rules for multiplication facts. Count by fives and using left hand count the number that is not 9 and put it down. Then use amount before the finger for tens place and after for ones place.

Act. 3: review random facts of 5 and 9, the model teaching repeated addition of 6-8s for multiplication facts and do random facts of all types less then 9s.

Act 4: do multiplying facts less then 9 with integers and teach rules of positive and negatives.

Act 5: using act 3 strategies, teach multiplying process of multiplying a 3 or 4 digit by a 2 digit. (Mastery move to division)

Act. 6: quick review of problems that involve addition, subtraction, multiplication with integers, then introduce division as repeated subtraction with no integers. Start with division where students can use multiplication facts.

Act. 7: After mastery go to push in model in the classroom for grade level math with supported instruction in small groups after main lesson.

Materials: white boards, markers, pencil, paper

Applying Algebra to Geometry: Two-Dimensional Figures

created with taskstream

Author: Robert Prater
Based on unit by:
Date created: 04/18/2013 1:38 PM UMST ; **Date modified:** 04/18/2013 5:18 PM UMST

VITAL INFORMATION

Subject(s)

Mathematics

Grade/Level

Grade 8

Time Required

Three weeks, including Reviews and Quizes

Objective(s)

A. Identify the relationships of parallel and intersecting lines.

B. Identify properties of congruent triangles.

C. Identify and draw transformations.

D. Classify and find angle measures of polygons.

E. Fine the area of polygons and irregular figures, and find the area and circumference of circles.

Summary

Two-dimensional shapes are usually found in many real-world objects. The properties of two-dimensional figures can be sued to solved real-world problems dealing with snowflakes. For example, if you know exact shape of a snowflake, you can the measure of an interior angle in a snowflake.

IMPLEMENTATION

Learning Activities

1. Review prerequisite skills:
   a. Solve Equations b. Multiply Decimals c. Add Mixed Numbers
2. Line and Angle Relationships
   Identify the relationships of parallel and intersecting lines.
3. Congruent Triangles
   Identify congruent triangles and corresponding parts of congruent triangles
4. Transformations on the Coordinate Plane
   Draw translations, rotations, and reflections on a coordinate plane
5. Quadrilaterals
   a. Find the missing angle measures of a quadrilateral. b. Classify quadrilaterals.
6. Lessons Review - Practice Quiz 1
   1. Line and angle relationships 2. Congruent Triangles 3. Transformations on the coordinate plane 4. Quadrilaterals
7. Area: Parallelogams, Triangles, and Trapezoids
   a. Find area of parallelograms. b. Find the areas of triangles and trapezoids
8. Reading Mathematics
   Learning Mathematics Prefixes
9. Polygons
   a. Classify polygons. b. Determine the sum of of the measures of the interior and exterior angles of a polygon

10. Tessellations
    An Algebra Activity
11. Circles: Circumference and Area
    a. Find circumference of circles. b. Find area of circles
12. Lessons Review - Practice Quiz 2
    5. Area: Parallelograms, Triangles, and Trapezoids. 6. Polygons 7. Circles: Circumference and Area
13. Area: Irregular Figures
    Find area of irregular figures
14. Two-dimensional Figures: Review and Practice Test
    a. Concept Summaries b. Vocabulary Review c. Practice Test

Resources and Unit Handouts

- Materials and resources:
  Textbook: Pre-Algebra
  Unit 4, Chapter 10
  Glenco McGraw-Hill
  www.pre-alg.com

ASSESSMENT & STANDARDS

Standards

Standards addressed by entire unit

Display: Collapse All Expand All

AZ- Common Core State Standards (2012)

Subject: Mathematics

Grade: Grade 8

Domain: Geometry 8.G

Cluster:
Understand congruence and similarity using physical models, transparencies, or geometry software.
8.G.1. Verify experimentally the properties of rotations, reflections, and translations:

8.G.1.a. Lines are taken to lines, and line segments to line segments of the same length.

8.G.1.b. Angles are taken to angles of the same measure.

8.G.1.c. Parallel lines are taken to parallel lines.

8.G.2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

8.G.3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

8.G.4. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar twodimensional figures, describe a sequence that exhibits the similarity between them.

8.G.5. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an

argument in terms of transversals why this is so.

Cluster:
Understand and apply the Pythagorean Theorem.
8.G.6. Explain a proof of the Pythagorean Theorem and its converse.

8.G.7. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

8.G.8. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

Cluster:
8.G.9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

▽ **Domain:** Standards for Mathematical Practice 8.MP

Cluster:
8.MP.1. Make sense of problems and persevere in solving them.
8.MP.2. Reason abstractly and quantitatively.

8.MP.3. Construct viable arguments and critique the reasoning of others.

8.MP.4. Model with mathematics.

8.MP.5. Use appropriate tools strategically.

8.MP.6. Attend to precision.

8.MP.7. Look for and make use of structure.

8.MP.8. Look for and express regularity in repeated reasoning.

Assessment/Rubrics

Applying Algebra to Geometry: Ninth

created with taskstream

Author: Robert Prater
Based on unit by:
Date created: 04/18/2013 9:19 PM UMST ; **Date modified:** 04/18/2013 9:22 PM UMST

VITAL INFORMATION

Subject(s)	Mathematics
Grade/Level	Grade 9
Time Required	Three weeks, including Reviews and Quizes
Objective(s)	A. Identify the relationships of parallel and intersecting lines. B. Identify properties of congruent triangles. C. Identify and draw transformations. D. Classify and find angle measures of polygons. E. Fine the area of polygons and irregular figures, and find the area and circumference of circles.
Summary	Two-dimensional shapes are usually found in many real-world objects. The properties of two-dimensional figures can be sued to solved real-world problems dealing with snowflakes. For example, if you know exact shape of a snowflake, you can the measure of an interior angle in a snowflake.

IMPLEMENTATION

Learning Activities

1. Area: Irregular Figures 9
   Find area of irregular figures
2. Area: Parallelogams, Triangles, and Trapezoids 9
   a. Find area of parallelograms. b. Find the areas of triangles and trapezoids
3. Circles: Circumference and Area 9
   a. Find circumference of circles. b. Find area of circles
4. Congruent Triangles 9
   Identify congruent triangles and corresponding parts of congruent triangles
5. Lessons Review - Practice Quiz 1 9
   1. Line and angle relationships 2. Congruent Triangles 3. Transformations on the coordinate plane 4. Quadrilaterals
6. Lessons Review - Practice Quiz 2 9
   5. Area: Parallelograms, Triangles, and Trapezoids. 6. Polygons 7. Circles: Circumference and Area
7. Line and Angle Relationships 9
   Identify the relationships of parallel and intersecting lines.
8. Polygons 9
   a. Classify polygons. b. Determine the sum of of the measures of the interior and exterior angles of a polygon
9. Quadrilaterals 9
   a. Find the missing angle measures of a quadrilateral. b. Classify quadrilaterals.

BCS275

10. Reading Mathematics 9
    Learning Mathematics Prefixes
11. Review prerequisite skills 9
    a. Solve Equations b. Multiply Decimals c. Add Mixed Numbers
12. Tessellations 9
    An Algebra Activity
13. Transformations on the Coordinate Plane 9
    Draw translations, rotations, and reflections on a coordinate plane
14. Two-dimensional Figures: Review and Practice Test 9
    a. Concept Summaries b. Vocabulary Review c. Practice Test

Resources and Unit Handouts

- Materials and resources:
  Textbook: Pre-Algebra
  Unit 4, Chapter 10
  Glenco McGraw-Hill
  www.pre-alg.com

ASSESSMENT & STANDARDS

Standards

Standards addressed by entire unit

Display: Collapse All Expand All

AZ- Common Core State Standards (2012)

Subject: Mathematics

Grade: High School

Content Area: Geometry

Domain:
Similarity, Right Triangles, and Trigonometry G-SRT

Area: Understand similarity in terms of similarity transformations

Standard:
2. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

Standard:
3. Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

Domain:
Geometric Measurement and Dimension G-GMD

Cluster:
Explain volume formulas and use them to solve problems
1. Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.

2. (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.

3. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

Cluster:
Visualize relationships between two-dimensional and threedimensional objects
4. Identify the shapes of two-dimensional cross-sections of threedimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Assessment/Rubrics