

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations Grade 5-7 Benchmarks: None Content Organizer: Number and Number Systems				
Grade level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
1. Demonstrate an understanding of place value using powers of 10 and write large numbers in scientific notation.	<p># 1 Subscale: Number and Numeracy</p> <p>Represent and use real numbers in a variety of equivalent forms.</p> <p>Understand the various forms of real numbers—fractions, percents, integers, exponential numbers, and scientific notation</p> <p>Compare and order numbers in various forms</p> <p>Determine an equivalent form for a given number</p> <p>Determine which numbers within a group are not equivalent</p> <p>Determine relative size or position on a number line</p> <p>Irrational numbers included-square roots and π</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Data Around Us” Investigation 4 (pp. 41-43) Using Scientific Notation Lesson 4.3</p> <p>II. Remediation <i>Practical Mathematics</i> Lesson 13.7 (pp. 378-379) Scientific Notation</p> <p>III. Accelerated Math</p> <p>V. Teacher Reference: <i>Algebra To go</i> (Sections 064-065)</p> <p>IV. Teacher Reference: <i>Amsco’s Preparing for Qualifying Examinations in Mathematics</i> (pp. 25-28)</p>	<p>Introduce scientific notation with whole numbers-emphasize place value</p> <p>To be reinforced in 9th grade physical science class (Active Physics)</p> <p>Stress terms: power, base, exponent</p> <p>Introduce the use for a square root table for powers of 2</p> <p>Introduce calculator keys: X^2 and $\sqrt{\quad}$</p>	<p>I. Connected Mathematics “Data Around Us” Can use ACE Questions (pp. 44-45)# 6-10, 14</p> <p>II. Practical Mathematics Chapter Test (p. 393) #38-46</p> <p>III. Computer-generated test</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations Grade 5-7 Benchmarks: None Content Organizer: Number and Number Systems				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
2. Explain the meaning of exponents that are negative or 0.	# 1 Subscale: Number and Numeracy Represent and use real numbers in a variety of equivalent forms Understand the various forms of real numbers— fractions, percents, integers, exponential numbers, and scientific notation Compare and order numbers in various forms Determine an equivalent form for a given number Determine which numbers within a group are not equivalent Determine relative size or position on a number line Irrational numbers included- square roots and π	I. Discovery Lesson Encourage students to discover the meaning of exponents that are negative or 0 by creating a pattern: Example: $2^4=2 \times 2 \times 2 \times 2=16$ $2^3=2 \times 2 \times 2=8$ $2^2=2 \times 2=4$ $2^1=2$ $2^0=1$ 2 $2^{-1} = \frac{1}{2} = \frac{1}{2}$ $2^{-2} = \frac{1}{2} = \frac{1}{4}$ $2^{-3} = \frac{1}{2} = \frac{1}{8}$ II. Teacher Reference: Algebra To Go (Section 052)	Discuss using negative integers as exponents as a way to write very small numbers using scientific notation. Develop and explore patterns.	II. See Appendix Pg. 20

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations
Grade 5-7 Benchmarks: None
Content Organizer: Number and Number Systems

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>3. Describe differences between rational and irrational numbers; e.g., use technology to show that some numbers (rational) can be expressed as terminating or repeating decimals and others (irrational) as non-terminating and non-repeating decimals.</p>	<p>#1 Subscale: Number and Numeracy</p> <p>Understand the various forms of real numbers- fractions, percents, integers, exponential numbers, and scientific notation</p> <p>Compare and order numbers in various forms</p> <p>Determine an equivalent form for a given number</p> <p>Determine which numbers within a group are not equivalent</p> <p>Determine relative size or position on a number line</p> <p>Irrational numbers included square roots and π</p>	<p>I. Primary Resource Connected Mathematics “Comparing and Scaling” Investigation 1 (pp. 5-15) Making Comparisons (pp. 15a-15d) Teacher Edition TE Investigation 2 (pp. 16-25) Comparing by Finding Percents (pp. 25a-25d) TE Materials – transparencies, large paper, centimeter grid paper</p>	<p>Change fraction to decimal by dividing numerator by denominator</p> <p>Change fractions to common denominators</p> <p>Use top half of page dealing with cross products (p. 139)</p> <p>Comparing integers is being covered on Number and Numeracy (p. 1 of this guide)</p> <p>Introduce the Comparison Property of Numbers: For all numbers a and b, <i>exactly one of the following statements is true:</i> $a < b$, $a = b$, $a > b$ Draw a circle, then use manipulatives (ex. string) and measurement to calculate pi $\frac{C}{D} = \pi$</p>	<p>I. Connected Mathematics “Comparing and Scaling” Check – Up 1 TE (pp. 86-87) # 1, 3, 5, 7, 8 Quiz TE (pp. 89-90) # 1, 2, 5, 6, 7</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations
Grade 5-7 Benchmarks: E. Use order of operations, including use of parentheses and exponents to solve multi-step problems, and verify and interpret the result.
Content Organizer: Meaning of Operations

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>4. Use order of operations and properties to simplify numerical expressions involving integers, fractions and decimals.</p>	<p># 1 Subscale: Number and Numeracy</p> <p>Represent and use real numbers in a variety of equivalent forms.</p> <p>Understand the various forms of real numbers–fractions, percents, integers, exponential numbers, and scientific notation.</p> <p>Compare and order numbers in various forms.</p> <p>Determine an equivalent form for a given number.</p> <p>Determine which numbers within a group are not equivalent</p> <p>Determine relative size or position on a number line.</p> <p>Irrational numbers included square roots and π</p>	<p>I. Secondary Resource Practical Mathematics</p> <p>Lesson 14-1 (pp. 398-399) Order of Operations</p> <p>II. Accelerated Math</p> <p>III. Teacher Reference: <i>Algebra to Go</i> (Sections 068-071)</p>	<p>Order of Operations P E M D A S Please <u>excuse my dear Aunt Sally</u>. Parentheses Exponents Multiplication-Division from left to right Addition-Subtraction from left to right</p> <p>See Appendix (pp. 9-18) for basic decimal/fraction computation review.</p>	<p>I. Practical Mathematics Chapter Review (p. 422) Problems # 4-8</p> <p>Chapter Test (p. 423) # 1-6</p> <p>II. Computer-generated test</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content–specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations Grade 5-7 Benchmarks: H. Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers. Content Organizer: Meaning of Operations				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
5. Explain the meaning and effect of adding, subtracting, multiplying and dividing integers; e.g., how adding two integers can result in a lesser value.	<p># 1 Subscale: Number and Numeracy</p> <p>Represent and use real numbers in a variety of equivalent forms.</p> <p>Understand the various forms of real numbers-fractions, percents, integers, exponential numbers, and scientific notation.</p> <p>Compare and order numbers in various forms.</p> <p>Determine an equivalent form for a given number.</p> <p>Determine which numbers within a group are not equivalent</p> <p>Determine relative size or position on a number line.</p> <p>Irrational numbers included square roots and π</p>	<p>I. Primary Resource <i>Connected Mathematics</i> <i>“Accentuate the Negative”</i></p> <p>Investigation 2 (pp. 18-33) Adding Integers TE (pp. 33a-33l) Lab Materials – CMP Kit</p> <p>Investigation 3 (pp. 34-52) Subtracting Integers TE (pp. 52a-52o)</p> <p>Investigation 4 (pp. 53-66) Multiplying and Dividing Integers TE (pp. 66a-66j) Lab Sheet 4.3</p>	<p>Relate adding and subtracting integers to the TV game Jeopardy</p> <p>Emphasize that subtracting an integer is the same as adding its opposite</p> <p>Relate positive and negative numbers to temperature.</p> <p>Describe a thermometer as a vertical number line</p> <p>Point out business language, profits and losses</p> <p>Use a table to show patterns of multiplying integers</p> <p>Use Alge-Blocks</p> <p>Tell Good Guy-Bad Guy story to explain multiplication of integers (See Appendix p.3)</p>	<p>I. Connected Mathematics. Investigation 2 TE (pp. 144-145) # 4, 8, 14, 17</p> <p>Investigation 3 TE (pp. 146-147) #1, 14, 23</p> <p>Investigation 4 TE (pp. 148-149) # 2-6, 8, 15, 17</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations Grade 5-7 Benchmarks: I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents. Content Organizer: Computation and Estimation				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
6. Simplify numerical expressions involving integers, and use integers to solve real-life problems.	<p># 2 Subscale: Computation and Estimation</p> <p>Use decimals, fractions, percents, integers, exponential numbers and absolute values (also includes irrationals such as square roots and π)</p> <p>Perform computations in <u>problem—solving/real world context</u> (ex.-apply division to find unit price of items, justify purchase-solve problems in context)</p> <p>Estimate an approximate answer/reasonable result</p> <p>Computation using standard algorithms in isolation will not be assessed—problems will be in real-world type settings.</p>	<p>I. Primary Resource <i>Connected Mathematics “Accentuate the Negative” Investigation 1</i> (pp. 5-11) Extending the Number Line TE (pp. 17a-17f)</p> <p>II. Teacher Reference: <i>Algebra To Go</i> (Sections 103-105 and 002-004)</p> <p>III. Teacher Reference: <i>Amsco’s Preparing for Qualifying Examinations in Mathematics</i> (+pp. 33-46)</p>	<ul style="list-style-type: none"> • Relate adding and subtracting integers to the TV game Jeopardy • Emphasize that subtracting an integer is the same as adding its opposite • Relate positive and negative numbers to temperature. • Describe a thermometer as a vertical number line • Point out business language, profits and losses • Use a table to show patterns of multiplying integers • Use Alge-Blocks • Tell Good Guy-Bad Guy story to explain multiplication of integers <p>(See Appendix p.3)</p>	<p>I. Connected Mathematics Investigation 1 Extending the Number Line TE (pp. 142-143) # 11-15</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations Grade 5-7 Benchmarks: I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents. Content Organizer: Computation and Estimation				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
7. Solve problems using the appropriate form of a rational number (fraction, decimal or percent).	<p># 2 Subscale: Computation and Estimation</p> <p>Use decimals, fractions, percents, integers, exponential numbers and absolute values (also includes irrationals such as square roots and π)</p> <p>Perform computations in <u>problem—solving/real world context</u> (ex.-apply division to find unit price of items, justify purchase-solve problems in context)</p> <p>Estimate an approximate answer/reasonable result</p> <p>Computation using standard algorithms in isolation will not be assessed—problems will be in real-world type settings</p>	<p>I. Primary Resource <i>Practical Mathematics</i></p> <p>Chapter 3 “Decimal Computation” Lesson 3.1 (pp. 62-63) Example 3 and #27-36 Adding Decimals Lesson 3.2 (pp. 64-65) Example 3 and #24-28 Subtracting Decimals</p>	<p>Estimate sums and differences of fractions by using benchmarks on a number line.</p> <p>Example: You live $6\frac{3}{4}$ miles from McDonald’s and $3\frac{1}{10}$ miles from Taco Bell. About how much farther away from you is McDonald’s than Taco Bell?</p> <p style="text-align: center;">←-----→</p> <p style="text-align: center;">0 $\frac{1}{10}$ $\frac{1}{4}$ $\frac{1}{2}$ $\frac{3}{4}$ $\frac{9}{10}$ 1</p> <p>Determine whether $\frac{3}{4}$ and $\frac{1}{10}$ are closer to 0 or 1 and round accordingly.</p> <p>So $6\frac{3}{4} \rightarrow 7$ $-3\frac{1}{10} \rightarrow -\frac{3}{4}$</p> <p>McDonald’s is about 4 miles farther away from you than Taco Bell.</p> <p>Point out that the more you refine an estimate, the more accurate your approximation becomes.</p>	<p>I. Practice, Reteaching and Activity Book Re-teaching (p. 7) # 1-31</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations Grade 5-7 Benchmarks: H. Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers. Content Organizer: Computation and Estimation				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
8. Develop and analyze algorithms for computing with percents and integers, and demonstrate fluency in their use. *For percent, see indicator # 7	# 1 Subscale: Number and Numeracy Represent and use real numbers in a variety of equivalent forms. Understand the various forms of real numbers—fractions, percents, integers, exponential numbers, and scientific notation Compare and order numbers in various forms Determine an equivalent form for a given number Determine which numbers within a group are not equivalent Determine relative size or position on a number line Irrational numbers included-square roots and π	I. Primary Resource <i>Connected Mathematics</i> “Accentuate the Negative” Investigation 1 (pp. 5-17) Extending the Number Line Lessons 1.1-1.3 ACE Questions (pp. 12-16) #1-29 Investigation 2 (pp. 18-33) Adding Integers TE (pp. 33a-33i) Lab Materials – See CMP Kit Investigation 3 (pp. 34-52) Subtracting Integers TE (p. 52a-52o) Investigation 4 (pp. 53-66) Multiplying and Dividing Integers TE (p. 66a-66j) Lab Sheet 4.3 II. Remediation <i>Practical Mathematics</i> Chapter 13 (pp. 363-375) “Rational Numbers” Lessons 13.1-13.5 III. Accelerated Math IV. Teacher Reference: Algebra To Go (Sections 002, 078,-079, 083-084, 091-093)	Relate adding and subtracting integers to the TV game Jeopardy Emphasize that subtracting an integer is the same as adding its opposite Relate positive and negative numbers to temperature. Describe a thermometer as a vertical number line Point out business language, profits and losses Use a table to show patterns of multiplying integers Use Alge-Blocks Tell Good Guy-Bad Guy story to explain multiplication of integers (See Appendix p.3)	I. Connected Mathematics Investigation I Extending the Number Line TE (pp. 142-143) #11-15 Investigation 2 TE (pp. 144-145) #4, 8, 14, 17 Investigation 3 TE (pp. 146-147) #1, 14, 23 Investigation 4 TE (pp. 148-149) #2-6, 8, 15, 17 II. Practical Mathematics (p. 337) Teacher selected questions from these pages: (p. 456) Chapter 13 (pp. 367-369) (p. 457) all Explain in writing the steps of the process used to determine solutions III. Computer-generated test.

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations
Grade 5-7 Benchmarks: G. Apply and explain the use of prime factorization, common factors and common multiples in problem situations. I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.
Content Organizer: Computation and Estimation

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>9. Represent and solve problem situations that can be modeled by and solved using concepts of absolute value, exponents and square roots (for perfect squares).</p>	<p># 7 Subscale: Number & Numeracy Basic understanding of linear/non-linear functions</p> <p>Slope of a line, characteristics of graphs, differences between graphs of linear/non-linear functions</p> <p>Ex. Relate equation to its graph, graph to equation, recognize connection between slope and real-world situation</p> <p>Recognize/use equivalent ideas--zeros of functions, roots of equations, and/or solution of an equation</p> <p>Non-linear functions--recognize graphs (quadratics, exponential growth/decay)</p> <p>Interpret graphs</p> <p>Plot points--distinguish linear/non-linear relationships Note: Quadratic functions will have integer solutions</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Accentuate the Negative” Investigation 1 (pp. 9-11) Extending the Number Line Lesson 1.3 Also see ACE Questions (pp. 12-15) #1-25 Investigation 2 (pp. 18-21) Adding Integers Lesson 2.1 Also see ACE Questions (p. 26)# 1-7 Investigation 3 (pp. 40-42) Subtracting Integers Lesson 3.2 Also see ACE Questions #2-10, 15-20</p> <p>II. Remediation <i>Practical Mathematics</i> Lesson 13.1(pp. 364-366) Integers Lesson 13.2 (pp. 367-369) Adding Integers Lesson 13.3 (pp. 370-371) Subtracting Integers</p>	<p>Relate to a number line</p> <p>Use a thermometer to calculate temperature change</p> <p>Emphasize that distance measurement is always positive and so absolute value is always positive.</p> <p>Explain:</p> <p>$1 - 61 = 6$ $-161 = -6$</p>	<p>I. <i>Connected Mathematics</i> Check-up 1 (pp. 84-85) # 1-9, 11-12</p> <p>Check-up 2 (p. 86) # 13-14</p> <p>ACE Question (p. 29) # 29</p> <p>II. <i>Practical Mathematics</i> (p. 365) # 37-59 (p. 368) # 1-28 (p. 371) # 1-38</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations

Grade 5-7 Benchmarks: None

Content Organizer: Number and Number Systems

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>3. Describe differences between rational and irrational numbers; e.g., use technology to show that some numbers (rational) can be expressed as terminating or repeating decimals and others (irrational) as non-terminating and non-repeating decimals.</p>	<p>#1 Subscale: Number and Numeracy</p> <p>Understand the various forms of real numbers-fractions, percents, integers, exponential numbers, and scientific notation</p> <p>Compare and order numbers in various forms</p> <p>Determine an equivalent form for a given number</p> <p>Determine which numbers within a group are not equivalent</p> <p>Determine relative size or position on a number line</p> <p>Irrational numbers included square roots and π</p>	<p>Chapter 9 “Percents” Lessons 9.1-9.3</p> <p><i>IV. Accelerated Math</i></p> <p>V. Teacher Reference: <i>Algebra To Go</i> (Section 002-014)</p> <p>VI. Teacher Reference Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 14-15 and 22-24)</p>	<p>Examine circles of various sizes to determine π using the equation $\frac{C}{D} = \pi$</p> <p>(Use pizza pans, lids, etc. from real world)</p> <p>Have students stand around the middle circle on gym floor. Create a diameter of students.</p> <p>Divide number of students on circumference by number of students on diameter to get an approximation of π</p>	<p>IV. Computer-generated test</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations Grade 5-7 Benchmarks: H. Use and analyze the steps in standard and non-standard algorithms for computing with fractions, decimals and integers. Content Organizer: Meaning of Operations				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
5. Explain the meaning and effect of adding, subtracting, multiplying and dividing integers; e.g., how adding two integers can result in a lesser value.	# 1 Subscale: Number and Numeracy Represent and use real numbers in a variety of equivalent forms. Understand the various forms of real numbers–fractions, percents, integers, exponential numbers, and scientific notation. Compare and order numbers in various forms. Determine an equivalent form for a given number. Determine which numbers within a group are not equivalent Determine relative size or position on a number line. Irrational numbers included square roots and Π	I. Accelerated Math II. Teacher Reference: <i>Algebra To Go</i> (Sections 002, 078-079, 083-084, 091-093)		Explain in writing the steps of the process used to determine solutions I. Computer-generated test.

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content–specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations
Grade 5-7 Benchmarks: I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.
Content Organizer: Computation and Estimation

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>7. Solve problems using the appropriate form of a rational number (fraction, decimal or percent).</p>	<p># 2 Subscale: Computation and Estimation</p> <p>Use decimals, fractions, percents, integers, exponential numbers and absolute values (also includes irrationals such as square roots and π)</p> <p>Perform computations in <u>problem—solving/real world context</u> (ex.-apply division to find unit price of items, justify purchase-solve problems in context)</p> <p>Estimate an approximate answer/reasonable result</p> <p>Computation using standard algorithms in isolation will not be assessed—problems will be in real-world type settings</p>	<p>III. Secondary Resource <i>Practical Mathematics</i> Chapter 9 “Percents” Lesson 9-4 (pp. 240-241) Finding a Percent of a Number. Lesson 9-6 (p. 245) Career: Store Owner</p> <p>III. Teacher Reference: <i>Algebra To Go</i> Sections (295-308)</p> <p>IV. Extending Resource <i>Connected Mathematics</i> “What do you Expect?” Investigation 3 (pp. 32-35) Probability and Area Lesson 3.1 and 3.2</p>	<p>Point out that when an item is 20% off, you are actually paying the complement of 80%.</p> <p>Use benchmarks (such as $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, 10%, 25%, 50%, and 75%) to estimate and check for reasonability.</p> <p>Draw a diagram and split the diagram up into equal sized pieces. Then use probability to see how many sections are in each room compared to the total number of sections (Relating probability and area)</p>	<p>III. Practical Mathematics (p. 241) Problems #1-42 (p. 245) Problems # 1-10</p> <p>IV. connected Mathematics ACE Questions (pp. 36-39) Problems # 1-9</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations
Grade 5-7 Benchmarks: I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.
Content Organizer: Computation and Estimation

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>7. Solve problems using the appropriate form of a rational number (fraction, decimal or percent).</p>	<p># 2 Subscale: Computation and Estimation</p> <p>Use decimals, fractions, percents, integers, exponential numbers and absolute values (also includes irrationals such as square roots and π)</p> <p>Perform computations in <u>problem—solving/real world context</u> (ex.-apply division to find unit price of items, justify purchase-solve problems in context)</p> <p>Estimate an approximate answer/reasonable result</p> <p>Computation using standard algorithms in isolation will not be assessed—problems will be in real-world type settings</p>	<p>V. Accelerated Math</p> <p>VI. Teacher Reference: <i>Algebra To Go</i> (Sections 075, 011-012, 294-308)</p> <p>VI. Teacher Reference: Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 22-24)</p>	<p>Show the relationship between the place rounded to and the accuracy of the estimate.</p> <p>Example: 5.526 <u>+2.189</u></p> <p>rounded to the nearest whole number 6 <u>+2</u> 8</p> <p>rounded to the nearest tenth 5.5 <u>+2.2</u> 7.7</p> <p>rounded to the nearest hundredth 5.53 <u>+2.19</u> 7.72</p> <p>Emphasize that to make sure you have enough money to purchase items, overestimate the cost of the items and/or underestimate the amount of money you have.</p>	<p>V. Describe a situation when you should overestimate. Create a word problem using overestimation and solve</p> <p>VI. Computer-generated test</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations
Grade 5-7 Benchmarks: I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.
Content Organizer: Computation and Estimation

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>7. Solve problems using the appropriate form of a rational number (fraction, decimal or percent).</p>	<p># 2 Subscale: Computation and Estimation</p> <p>Use decimals, fractions, percents, integers, exponential numbers and absolute values (also includes irrationals such as square roots and π)</p> <p>Perform computations in <u>problem—solving/real world context</u> (ex.-apply division to find unit price of items, justify purchase-solve problems in context)</p> <p>Estimate an approximate answer/reasonable result</p> <p>Computation using standard algorithms in isolation will not be assessed—problems will be in real-world type settings</p>		<p>Show the students how taking 50% is just dividing by 2, taking 10% is just dividing by 10, and taking 1% is dividing by 100. To get 30%, we take 10% and multiply by 3. To get 25%, we take 50% and divide by 2.</p>	

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Number, Number Sense and Operations
Grade 5-7 Benchmarks: G. Apply and explain the use of prime factorization, common factors and common multiples in problem situations. I. Use a variety of strategies, including proportional reasoning, to estimate, compute, solve and explain solutions to problems involving integers, fractions, decimals and percents.
Content Organizer: Computation and Estimation

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>9. Represent and solve problem situations that can be modeled by and solved using concepts of absolute value, exponents and square roots (for perfect squares).</p>	<p># 7 Subscale: Number & Numeracy Basic understanding of linear/non-linear functions</p> <p>Slope of a line, characteristics of graphs, differences between graphs of linear/non-linear functions</p> <p>Ex. Relate equation to its graph, graph to equation, recognize connection between slope and real-world situation</p> <p>Recognize/use equivalent ideas--zeros of functions, roots of equations, and/or solution of an equation</p> <p>Non-linear functions--recognize graphs (quadratics, exponential growth/decay)</p> <p>Interpret graphs</p> <p>Plot points--distinguish linear/non-linear relationships Note: Quadratic functions will have integer solutions</p>	<p>I. Accelerated Math</p> <p>II. Teacher Reference: <i>Algebra to Go</i> (Sections 009-010 and 056-058)</p> <p>III. Teacher Reference: Amsco's <i>Preparing For Qualifying Examinations in Mathematics</i> (pp. 35-36)</p>	<p>Show the relationship between squaring a number and finding the square root.</p> $6^2 = 36 \quad \sqrt{36} = 6$ <p>Emphasize memorization of squares, numbers 1-15</p> <p>On <i>Section 15.2</i>, have students first estimate the square root of the given number to the nearest whole number, then check each problem with a calculator, or table as the directions specify.</p> <p>See above strategies to focus on the estimation of the square root of a given number to the nearest whole number. Have students use a calculator or a table to check for reasonableness of an estimate.</p>	<p>VI. Computer-generated test.</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Measurement

Grade 5-7 Benchmarks: A. Select appropriate units to measure angles, circumference, surface area, mass and volume, using: U.S. customary units; e.g., degrees, square feet, pounds, and other units as appropriate; Metric units; e.g., square meters, kilograms and other units as appropriate.

Content Organizer: Measurement Units

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>1. Select appropriate units for measuring derived measurements; e.g., miles per hour, revolutions per minute.</p>	<p># 11 Subscale: Geometry and Measurement Use measurement techniques including scale drawings, formulas, and geometric relationships to find length, perimeter, area, surface area, and volume.</p> <p>Understand length, perimeter, circumference, area, surface area, and volume in simple geometric shapes/objects or combination of shapes</p> <p>Choose appropriate units of measure (length, area, and volume)</p> <p>Apply formulas Use Pythagorean Theorem Analyze effect of changing one dimension of a figure or of using a different unit of measure</p> <p>Note: metric/customary units are used but no conversion between systems</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Variables and Patterns” Investigation 4 (pg. 49-52) Patterns and Rules Lesson 4.1-4.2</p> <p>II. Secondary Resource <i>Practical Mathematics</i> Chapter 3 “Decimal Computation” Lesson 3.12 (pg. 83)</p> <p>Chapter 14 “Equations” Lesson 14.4 (p. 405)</p>	<p>Use all variations of the distance formula:</p> $d=rt \quad r=\frac{d}{t}$ $t=\frac{d}{r}$ <p>Add formulas to student-created formula reference sheet.</p> <p>See Appendix (p. 19) to lead students into proportional reasoning and measurement</p>	<p>I. Connected Mathematics (p. 52) problem 4.2 Follow-Up</p> <p>II. Practical Mathematics (Pg. 83) # 9</p> <p>(Pg. 405) # 405</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

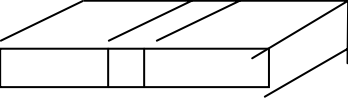
Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Measurement

Grade 5-7 Benchmarks: B. Convert units of length, area, volume, mass and time within the same measurement system.

Content Organizer: Measurement Units

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>2. Convert units of area and volume within the same measurement system using proportional reasoning and a reference table when appropriate; e.g., square feet to square yards, cubic meters to cubic centimeters.</p>	<p># 11 Subscale: Geometry and Measurement Use measurement techniques including scale drawings, formulas, and geometric relationships to find length, perimeter, area, surface area, and volume.</p> <p>Understand length, perimeter, circumference, area, surface area, and volume in simple geometric shapes/objects or combination of shapes</p> <p>Choose appropriate units of measure (length, area, and volume)</p> <p>Apply formulas</p> <p>Analyze effect of changing one dimension of a figure or of using different unit of measure</p> <p>Note: metric/customary units are used but no conversion between systems</p>	<p>I. Primary Resource Supplemental Project</p> <p>II. Accelerated Math</p> <p>III. Teacher Reference: Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> Pg. 260-275</p> <p>IV. Teacher Reference: <i>Algebra to Go</i> Sections 455-456</p>	<p>“Redecorate a Room” Students will gather information in the classroom (or other designated room) to</p> <ul style="list-style-type: none"> -wallpaper or paint the walls -carpet the floor-put either molding or border (or both around the room) -determine how much space is available in the room if the room is to be used for storage <p>“3-D Measurement “</p> <p>Have 3-D objects and/or styrofoam pieces for students to measure and calculate perimeter area, and volume - begin with a rectangular prisms -move to triangular prisms, cylinders, pyramids, cones, etc.(think of area of soup can label , covering objects, etc.)-to give students physical practice and experience with actual objects and gather needed information</p> <p>Develop a reference table for student use when converting area and volume within the same measurement system. Examples: 9sq. ft. = 1sq. yd., 144 sq. in. = 1 sq. ft. 1000 cu. mm = 1 cu. cm, 1000 cu.dm=1 cu.m, 1,000,000 sq.m=1sq.km</p>	<p>“Package Information” Given a package the student will determine</p> <ul style="list-style-type: none"> -how much the box will hold -how much wrapping paper is needed for the box -how much ribbon is needed to adorn the box around its center <div style="text-align: center;">  </div> <p>Convert answers as stated in indicator</p> <p>III. Computer generated test.</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Measurement

Grade 5-7 Benchmarks: D. Select a tool and measure accurately to a specified level of precision.

Content Organizer: Use Measurement Techniques and Tools

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>3. Estimate measurement to a greater degree of precision than the tool provides.</p>	<p># 10 Subscale: Geometry and Measurement Apply visualization, spatial sense, and properties of two-dimensional figures and three-dimensional objects.</p> <p>Understand geometric properties of two/three dimensional figures/objects</p> <p>Recognize/use geometric properties</p> <p>Classify objects by properties</p> <p>Apply visual estimation in real-world context</p> <p>Recognize/apply transformations. (some may use coordinate plane)</p>	<p>I. Primary Resource Practical Mathematics Chapter 7 “Measurement” Enrichment p. 206</p> <p>II. Teacher Resource: Algebra to Go (Section 097)</p>	<p>Small Group Work</p> <p>Emphasize the difference between precision and accuracy.</p>	<p>Informal assessment of small group work.</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Measurement Grade 5-7 Benchmarks: E. Use problem solving techniques and technology as needed to solve problems involving length, weight, perimeter, area, volume, time and temperature. Content Organizer: Use Measurement Techniques and Tools				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>4. Solve problems involving proportional relationships and scale factors; e.g., scale models that require unit conversions within the same measurement system.</p>	<p># 3 Subscale Number and Numeracy Apply rates, ratios, proportions, and percents.</p> <ul style="list-style-type: none"> • Set-up/solve problems using rates, ratios, proportions, percents, in problem—solving/real-world context (may require multiple steps • Percents may include consumer applications-discounts, interests, gratuities (ex.-Successive percentage reductions-find sale price of item with 50% mark down and additional20% off) Scale drawings • Recognize/use multiple representations for situations with percents (25% reduction-same as 75% of original price) • Apply distance formula ($d=rt$) • Understand, simplify, and evaluate algebraic expressions/formulas • Simplify or evaluate algebraic expressions/formulas • Represent mathematical/real-world situations algebraically • Construct and apply expressions/equations • Apply order of operations and laws of exponents. 	<p>I. Primary Resource <i>Connected Mathematics</i> “Stretching and Shrinking” Investigation 2 (pp. 18-20) Similar Figures Lesson 2.2 Investigation 4 (pp. 41-42, 45-46) Using Similarity Lesson 4.1 and 4.4</p> <p>Investigation 5 (pp. 59-63) Similar Triangles Lessons 5.1-5.3</p> <p>II. Teacher Reference: <i>Algebra to Go</i> (Sections 261-262)</p>	<p>I. The concept of proportions can easily be added to the lesson in Stretching and Shrinking</p> <p>As an alternate way for students to solve the problems involving similar figures.</p> <p>Introduce term: scale factor</p> <p>Relate scale to reducing or enlarging an image</p> <p>Use scale factor to identify similar figure.</p> <p>Determine the scale factor between two similar figures.</p> <p>Use the scale factor between similar figures to find the lengths of corresponding sides.</p>	<p style="text-align: center;"><i>I. Connected Mathematics</i> “Stretching and Shrinking” ACE Questions pp. 47-48, 54 (#1-5) p. 54 (# 16-20) ACE Questions p. 67-68 (# 7 and 9)</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Measurement

Grade 5-7 Benchmarks: None

Content Organizer: Use Measurement Techniques and Tools

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>5. Analyze problem situations involving measurement concepts, select appropriate strategies, and use an organized approach to solve narrative and increasingly complex problems.</p>	<p># 11 Subscale: Geometry and Measurement Use measurement techniques including scale drawings, formulas, and geometric relationships to find length, perimeter, area, surface area, and volume.</p> <p>Understand length, perimeter, circumference, area, surface area, and volume in simple geometric shapes/objects or combination of shapes</p> <p>Choose appropriate units of measure (length, area, and volume)</p> <p>Apply formulas</p> <p>Analyze effect of changing one dimension of a figure or of using different unit of measure</p> <p>Note: metric/customary units are used but no conversion between systems</p>	<p>I. Primary Resource Connected Mathematics “Moving Straight Ahead”</p> <p>Investigation 1 (pp. 5-8) Predicting from Patterns</p> <p>Investigation 2 (pp. 15-23) Walking Rates</p> <p>Investigation 3 (pp. 36-43) Exploring Lines with a Graphing Calculator</p>	<p>Small group work</p> <p>Encourage discourse within small groups to select appropriate strategies and choose an approach to solve problems.</p> <p>Graphing Calculators</p>	<p><i>I. Connected Mathematics</i> Investigation 1 ACE Questions (pp. 9-13) #1-4, 6-9</p> <p><i>Investigation 2</i> ACE Questions (pp. 24-33) #1-5, 11-12, 14-17, 19-21</p> <p><i>Investigation 3</i> ACE Question (p. 51) # 28</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Measurement

Grade 5-7 Benchmarks: C. Identify appropriate tools and apply appropriate techniques for measuring angles, perimeter or circumference and area of triangles, quadrilaterals, circles and composite shapes, and surface area and volume of prisms and cylinders.

Content Organizer: Use Measurement Techniques and Tools

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>6. Use strategies to develop formulas for finding area of trapezoids, and volume of cylinders and prisms.</p>	<p># 11 Subscale: Geometry and Measurement Use measurement techniques including scale drawings, formulas, and geometric relationships to find length, perimeter, area, surface area, and volume.</p> <p>Understand length, perimeter, circumference, area, surface area, and volume in simple geometric shapes/objects or combination of shapes</p> <p>Choose appropriate units of measure (length, area, and volume)</p> <p>Apply formulas Use Pythagorean Theorem Analyze effect of changing one dimension of a figure or of using a different unit of measure</p> <p>Note: metric/customary units are used but no conversion between systems</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Filling and Wrapping” Investigations 3 (pp. 24-28) Finding Volumes of Boxes Lessons 3.1-3.3 Investigations 4 (pp. 37-40) Cylinders Lessons 4.1-4.3 II Accelerated Math III. Teacher Reference: <i>Algebra To Go</i> (pp. 469-470) IV. Teacher Reference: Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (p. 266)</p>	<p>Make a model Cooperative Learning groups</p> <p>Use cubic blocks to estimate volume of a prism</p> <p>Draw a diagram</p> <p>Group Investigations: “Volumes of Liquid”</p> <p>Connect with real life applications “Decorating an Apartment” (pp. 354-355)</p> <p>Have students prepare a formula reference sheet to use as needed when working on area problems.</p>	<p>I. Connected Mathematics ACE Questions (pp. 29-35) # 1-18</p> <p>ACE Questions (pp. 41-44) # 1-13</p> <p>ACE Questions (p. 53) # 6</p> <p>Chapter Test (p. 359) # 6, 14</p> <p>II. Chapter Review (p. 416) # 15-17</p> <p>Chapter Review (p. 417) # 29-34 Chapter Test (p. 419) # 17-18</p> <p>III. Mid Chapter Review (p. 342) # 8</p> <p>IV Computer-generated test</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

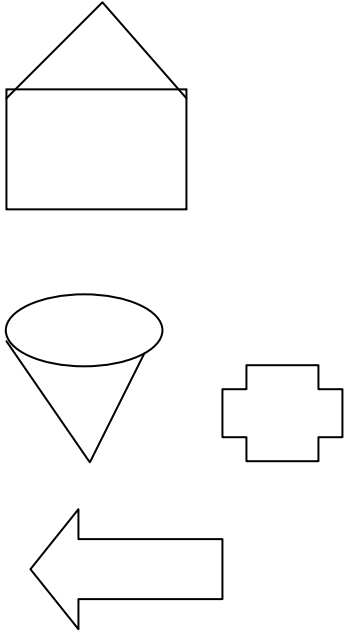
Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Measurement

Grade 5-7 Benchmarks: C. Identify appropriate tools and apply appropriate techniques for measuring angles, perimeter or circumference and area of triangles, quadrilaterals, circles and composite shapes, and surface area and volume of prisms and cylinders.

Content Organizer: Use Measurement Techniques and Tools

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>7. Develop strategies to find the area of composite shapes using the areas of triangles, parallelograms, circles, and sectors.</p>	<p># 10 Subscale: Geometry and Measurement</p> <p>Apply visualization, spatial sense, and properties of two-dimensional figures and three-dimensional objects.</p> <p>Understand geometric properties of two/three dimensional figures/objects</p> <p>Recognize/use geometric properties</p> <p>Classify objects by properties</p> <p>Apply visual estimation in real-world context</p> <p>Recognize/apply transformations. (some may use coordinate plane)</p>	<p>I. Primary Resource Practical Mathematics Chapter 12 “Perimeter, Area, and Volume” Lesson 12.7 Problem Solving Application (p. 343) # 2-4</p> <p>II. Accelerated Math</p>	<p>Include combinations of shapes, such as:</p> 	<p>II. Computer – generated test.</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Measurement

Grade 5-7 Benchmarks: G. Understand and demonstrate the independence of perimeter and area for two-dimensional shapes and surface area and volume for three-dimensional shapes.

Content Organizer: Use Measurement Techniques and Tools

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>8. Understand the difference between surface area and volume and demonstrate that two objects may have the same surface area, but different volumes or they may have the same volume, but different surface areas.</p> <p>9. Describe what happens to the surface area and volume of a three-dimensional object when the measurements of the object are changed; e.g., length of sides are doubled.</p>	<p># 11 Subscale: # 11 Subscale: Geometry and Measurement Use measurement techniques including scale drawings, formulas, and geometric relationships to find length, perimeter, area, surface area, and volume.</p> <p>Understand length, perimeter, circumference, area, surface area, and volume in simple geometric shapes/objects or combination of shapes</p> <p>Choose appropriate units of measure (length, area, and volume)</p> <p>Apply formulas</p> <p>Use Pythagorean Theorem Analyze effect of changing one dimension of a figure or of using a different unit of measure</p> <p>Note: metric/customary units are used but no conversion between systems</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Filling and Wrapping” Investigation 1 (pp. 5-9) Building Boxes Lessons 1.1—1.4 Investigation 2 (pp. 15-23) Designing Packages</p> <p>II. Teacher Reference: <i>Algebra to go</i> (pp. 467-470)</p> <p>III. Teacher Reference: <i>Amsco’s Preparing for Qualifying Examinations in Mathematics</i> (pp. 269-277) Problem 1 on pg. 277 Problem # 1 addresses indicator # 9.</p>	<ul style="list-style-type: none"> • Draw flat patterns to make a unit cube. Cut and fold patterns to form a box. • Use 3 dimensional shape models to explore surface area and volume. • Develop formula from the working knowledge that sum of the areas of all surfaces is equal to the total surface area. • Find models of these 3-dimensional figures in everyday life and bring to class. • Point out that most solid figures are named for the shape of their base(s). • Enlarge, cut, and fold the cube, rectangular prism, pyramid cylinder, and cone patterns. Determine formula. • Identify congruent faces of solid figures. Encourage students to determine the area of one of the faces and multiply by the number of congruent faces to find the surface area for the figure. • In small groups, estimate surface area of rectangular prisms. • Add a list of appropriate vocabulary to students’ notebooks. 	<p><i>I. Connected Mathematics</i> ACE Questions (pp. 10-11) #2-5 and 8a, b, c, d Use manipulatives. Requires short answer response.</p> <p>Investigation 2 ACE Questions (p. 19) #4 and 5 Requires short answer response.</p> <p>Identify the formula needed to find the surface area of a cube, rectangular prism, cylinder, pyramid, and cone. Explain in writing the process involved in finding the surface area of a given figure. TRB (pp. 349-350)</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Geometry and Spatial Sense

Grade 5-7 Benchmarks: E. Use proportions to express relationships among corresponding parts of similar figures. G. Describe and use properties of triangles to solve problems involving angle measures, and side lengths of right triangles J. Apply properties of equality and proportionality to solve problems involving congruent or similar figures; e.g., create a scale drawing.

Content Organizer: Characteristics and Properties # 1, 5 Content Organizer: Spatial Relationships #6

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>1. Use proportional reasoning to describe and express relationships between parts and attributes of similar and congruent figures.</p> <p>5. Apply properties of congruent or similar triangles to solve problems involving missing lengths and angle measures.</p> <p>6. Determine and use scale factors for similar figures to solve problems using proportional reasoning.</p>	<p># 3 Subscale Number and Numeracy</p> <p>Set-up/solve problems using rates, ratios, proportions, percents, in problem— solving/real-world context (may require multiple steps)</p> <p>Scale drawings</p> <p>Understand, simplify, and evaluate algebraic expressions/formulas; identify meaning of expressions/formulas</p> <p>Represent mathematical/real-world situations algebraically</p> <p>Construct and apply expressions/equations</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Stretching and Shrinking” Investigation 2 (pp. 18-20) Similar Figures Lesson 2.2 Investigation 4 (pp. 41-42, 45-46) Using Similarity Lesson 4.1 and 4.4</p> <p>II. Secondary Resource Practical Mathematics Chapter 8 “Ratio and Proportion” Lesson 8.8 (pp. 224-225)</p>	<p>Relate the terms “equal ratios” and “proportions”</p> <p>Relate proportions to equivalent fractions</p> <p>Method A Cross-multiply and divide</p> <p>Method B Use cross-products to write an equation, then solve</p>	<p>I. Connected Mathematics “Stretching and Shrinking” ACE Questions (pp. #47-48, 54) #1-5, 16-20</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Geometry and Spatial Sense
Grade 5-7 Benchmarks: D. Identify, describe and classify types of line pairs, angles, two-dimensional figures, and three-dimensional objects using their properties.
Content Organizer: Characteristics and Properties

Objective(s)	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>2. Determine sufficient (not necessarily minimal) properties that define a specific two-dimensional figure or three-dimensional object. For example:</p> <p>(a) Determine when one set of figures is a subset of another; e.g., all squares are rectangles.</p> <p>(b) Develop a set of properties that eliminates all but the desired figure; only squares are quadrilaterals with all sides congruent and all angles congruent.</p>	<p>#10 Subscale Geometry and Measurement</p> <p>Understand geometric properties of two/three dimensional figures/objects</p> <p>Apply visual estimation in real—world context</p> <p>Recognize/apply transformations (some may use coordinate plane)</p> <p>Understand geometric properties of two/three dimensional figures/objects</p> <p>Recognize/use geometric properties</p> <p>Classify objects by properties</p> <p>Apply visual estimation in real—world context</p> <p>Recognize/apply transformations (some may use coordinate plane)</p>	<p>I. Accelerated Math</p> <p>II. Teacher Reference: <i>Algebra To Go</i> (Sections 243-244, 251-253, 453-454)</p> <p>III. Teacher Reference: Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 205-206, 208-209, 213-215, 219-220, 224-227)</p>	<p>Play Concentration using terms and definitions/properties in small groups.</p> <p>IV. (p. 253) Clarify overlapping classifications of quadrilaterals.</p> <p>Use 3-dimensional shape models to explore the number of faces, edges, and vertices of each object.</p>	<p>List real-life objects which are rectangular prisms, cylinders, cones, and pyramids</p> <p>Explain the similarities and differences between two different shapes</p> <p>III. Computer-generated test</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.


Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Geometry and Spatial Sense

Grade 5-7 Benchmarks: G. Describe and use properties of triangles to solve problems involving angle measures, and side lengths of right triangles.

Content Organizer: Characteristics and Properties

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>3. Use and demonstrate understanding of the properties of triangles. For example:</p> <p>(a) Use Pythagorean Theorem to solve problems involving right triangles.</p> <p>(b) Use triangle angle sum relationships to solve problems.</p>	<p>#10 Subscale Geometry and Measurement</p> <p>Understand geometric properties of two/three dimensional figures/objects</p> <p>Apply visual estimation in real—world context</p> <p>Recognize/apply transformations (some may use coordinate plane)</p> <p>Use Pythagorean Theorem</p> <p>Recognize/use geometric properties</p> <p>Classify objects by properties</p>	<p>I. Accelerated Math</p> <p>II. Teacher Reference <i>Geometry to Go</i> (Sections 133-134, 142-154)</p> <p>III. Teacher Reference <i>Algebra to Go</i> (Sections 239-248)</p> <p>IV. Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 213-218, and 285-290)</p>	<p>$a^2 + b^2 = c^2$ Pythagorean Theorem</p> <p>180° in  - Cut off angles and form a straight line</p> <p>Research Pythagoras Use grade 8 Connected Math book, Looking for Pythagoras (p. 30) Use internet/encyclopedia.</p>	<p>I. Quiz</p> <ol style="list-style-type: none"> 1) Can an equilateral triangle be obtuse? Why or why not? 2) Can an equilateral triangle be a right triangle? Why or why not? 3) Can an equilateral triangle be acute? Why or why not? <p>II. Quiz Transparency 11.7 # 1-5</p> <p>III. Computer-generated test</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Geometry and Spatial Sense Grade 5-7 Benchmarks: F. Describe and use the concepts of congruence, similarity and symmetry to solve problems. Content Organizer: Characteristics and Properties				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
4. Determine necessary conditions for congruence of triangles.	#10 Subscale Geometry and Measurement Understand geometric properties of two/three dimensional figures/objects Recognize/use geometric properties Classify objects b properties Apply visual estimation in real—world context Recognize/apply transformations (some may use coordinate plane)	I. Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 228-230) (pp. 231-232) # 1, 3-8 and 12-15 II. Teacher Resource Geometry to Go (Sections 261-270) III. Accelerated Math	Use protractors to measure angles of various triangles to determine congruence. Use six drinking straws of the same length to form two triangles. Since the straws used are all the same length, all triangles formed will be congruent. As long as the sides remain congruent, the measures of the angles will also be congruent. Add these terms to students’ notebooks: Congruence SAS ASA AAS	I. Computer-generated test.

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Geometry and Spatial Sense Grade 5-7 Benchmarks: F. Describe and use the concepts of congruence, similarity and symmetry to solve problems. Content Organizer: Transformations and Symmetry				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>7. Identify the line and rotation symmetries of two-dimensional figures to solve problems.</p> <p>8. Perform translations, reflections, rotations and dilations of two-dimensional figures using a variety of methods (paper folding, tracing graph paper).</p>	<p>#10 Subscale Geometry and Measurement</p> <p>Understand geometric properties of two/three dimensional figures/objects</p> <p>Recognize/use geometric properties</p> <p>Classify objects by properties</p> <p>Apply visual estimation in real-world context</p> <p>Recognize/apply transformations (some may use coordinate plane)</p>	<p>I. Primary Resource See Appendix (pp.32-51)</p> <p>II. Primary Resource <i>Slides, Flips, and Turns</i> (this book can be used for instruction or assessment.)</p> <p>III. Teacher Reference: <i>Geometry to go</i> (Sections 279-285)</p> <p>IV. Teacher Reference: Amsco's <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 334-337)</p>	<p>Use tracing paper to explore the concept of rotation symmetry.</p> <p>Find magazine cut-outs that illustrate symmetry.</p> <p>Have students reflect on the following questions when working with shapes: How are they the same? How are they different?</p> <p>Use paper folding to illustrate symmetry and transformations.</p>	<p>I. Appendix Pattern Block Designs</p> <p>Teacher observation</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Geometry and Spatial Sense Grade 5-7 Benchmarks: I. Identify and draw three-minensional objects from different views (top, side, front and perspective). Content Organizer: Transformations and Symmetry				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
9. Identify the line and rotation symmetries of two-dimensional figures to solve problems.	#10 Subscale Geometry and Measurement Understand geometric properties of two/three dimensional figures/objects Recognize/use geometric properties Classify objects by properties Apply visual estimation in real-world context Recognize/apply transformations (some may use coordinate plane)	I. Primary Resource Tim Erickson’s United We Solve “Arrange the Blocks” (pp. 100-112)	.Build a model of a figure using colored inch cubes or centimeter cubes. Draw a representation of the figure from the model.	<i>I. United We Solve</i> Point of View (pp. 102-105) # 1-4 Eternal Flame (p. 106) Arrange Six (p. 107) Lost Labels (p. 108) Possible Project

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Patterns, Functions & Algebra

Grade 5-7 Benchmarks: B. Represent, analyze, and generalize a variety of patterns and functions with tables, graphs, words, and symbolic rules. G. Write, simplify and evaluate algebraic expressions.

Content Organizer: Use Patterns, Relations, and Functions

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>1. Represent and analyze patterns, rules and functions with words, tables, graphs and simple variable expressions.</p>	<p>#6 Subscale Patterns, Function and Algebra</p> <p>Translate among mathematical relationships in various forms</p> <p>Analyze/represent mathematical relationships</p> <p>Provide an example of a situation demonstrating a mathematical relationship</p> <p>Identify missing number or point in a table, symbolic, or graphical representation</p> <p>Identify how a change in one variable affects the value of another</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Variables and Patterns” Investigation 1 (pp. 5-16) Variables and Coordinate Graphs Investigation 2 (pp. 18-34) Graphing Change Investigation 3 (pp. 36-47) Analyzing Graphs and Tables Investigation 4 (p. 49) Patterns and Rules</p> <p>II. Remediation <i>Practical Mathematics</i> Chapter 14 “Equations” Lesson 14-11 (pp. 418-420) Graphing Equations in Two Variables TRB Practice (p. 169)</p> <p>III. Teacher Reference: <i>Algebra to Go</i> (Sections 131-138)</p> <p>IV. Teacher Reference: Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 146-153)</p>	<p>Use graphing calculator</p> <p>Write a rule from an equation</p> <p>Plot points to create a graph</p> <p>Use coordinate graphing boards</p>	<p>I. <i>Connected Mathematics</i> Investigation 1 ACE Questions (pp. 10-16) Investigation 2 ACE Questions (pp. 26-34) Investigation 3 ACE Questions (pp. 42-47) Investigation 4 ACE Questions (pp. 54-59)</p> <p>II. <i>Practical Mathematics</i> Chapter 4 (pp. 96-97) # 1-3 Teacher Edition (p. 434)</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Patterns, Functions & Algebra

Grade 5-7 Benchmarks: B. Represent, analyze, and generalize a variety of patterns and functions with tables, graphs, words, and symbolic rules.

Content Organizer: Use Patterns, Relations, and Functions

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>2. Generalize patterns by describing, in words, how to find the next term.</p> <p>3. Recognize and explain when numerical patterns are linear, or nonlinear progressions; e.g., 1,3,5,7... is linear and 1,3,4,8,16...is nonlinear.</p>	<p># 7 Subscale Patterns, Functions and Algebra</p> <p>Basic understanding of linear/non-linear functions</p> <p>Slope of a line, characteristics of graphs, differences between graphs of linear/non-linear functions</p> <p>Ex. Relate equation to its graph, graph to equation, recognize connection between slope and real-world situation</p> <p>Recognize/use equivalent ideas--zeros of functions, roots of equations, and/or solution of an equation</p> <p>Non-linear functions--recognize graphs (quadratics, exponential growth/decay)</p> <p>Interpret graphs</p> <p>Plot points-- distinguish linear/non-linear relationships</p> <p>Note: quadratic functions will have integer solutions</p>	<p>I. Primary Text <i>Connected Mathematics</i> “Variables and Patterns” Investigation 2 (pp. 18-34) Graphing Change Lessons 2.1-2.5 ACE Questions (p. 26-34) # 1-13</p> <p>II. Primary Text <i>Connected Mathematics</i> “Moving Straight Ahead” Investigation 3 (pp. 35-51) Exploring Lines with a Graphing Calculator Problems 3.1-3.4 ACE Questions (pp. 44-49) # 1-4, 6-12, 18-26; Extension (p. 50) #27</p> <p>III. Remediation <i>Practical Mathematics</i> Lesson 14.11 (pp. 418-420) Graphing Equations in Two Variables # 13-25 Practice, Reteaching and Activity Book (p. 169)</p> <p>IV. Teacher Reference: <i>Algebra to Go</i> (Section 155)</p> <p>V. Teacher Reference: Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 188-1954)</p>	<p>Emphasize relationship between a graph and a written description of a real-life situation</p> <p>Use graphing calculators</p> <p>Practice interpreting graphs of problem situations describing linear and non-linear relationships</p> <p>Show how to use linear graphs to solve problems when the rate is constant.</p> <p>Introduce terms: x-intercept And y-intercept</p> <p>Graph solutions of a linear equation in two variables</p> <p>Generalizations can be made while completing Connected Mathematics investigations. Short-answer responses are needed.</p>	<p>I. <i>Connected Mathematics</i> Additional Practice Investigation 2 Teacher-selected questions from (pp. 134-135) Question Bank (pp. 76 and 78) Check-up (pp. 70-72)</p> <p>II. <i>Connected Mathematics</i> ACE Question (pp. 44-47) # 5, 13, 14, 16</p> <p>IV. <i>Practical Mathematics</i> (p. 420) # 26-33</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Patterns, Functions & Algebra

Grade 5-7 Benchmarks: H. Solve linear equations and inequalities symbolically, graphically and numerically. I. Explain how inverse operations are used to solve linear equations.

Content Organizer: Use Algebraic Representations

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>4. Create visual representations of equation-solving processes that model the use of inverse operations.</p>	<p>#5 Subscale Patterns, Functions and Algebra</p> <p>Use algebraic equations and inequalities to solve problems</p> <p>Equations and inequalities may involve whole numbers, decimals, fractions, and integers</p> <p>Systems of equations will be limited to two variables</p> <p>Formulate equations and inequalities to represent a problem situation, then solve</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Moving Straight Ahead” Investigation 4 (p. 53-58) Solving Equations Lesson 4.1 Paying in Installments Transparency 4.1 (p. 144) Lesson 4.2 Using the Symbolic Method Transparency 4.2 A-C (pp. 145-147)</p>	<p>Relate an equation to a see-saw or a scale showing how you must keep both sides balanced by doing the same thing to both sides.</p> <p>Show how to undo an operation by performing the inverse operation.</p> <p>Point out that we undo the operations in the inverse order of the Order of Operations.</p> <p>Point out why addition and subtraction undo each other. also why multiplication and division undo each other.</p> <p>Use a 4-pan Algebra balance</p>	<p>I. Connected Mathematics “Moving Straight Ahead” ACE Questions (pp. 59-62) #1, 2, 3, 8, 12, 13, 17 Quiz B (p. 101) #6-12 Additional Practice (p. 165) #1-3</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Patterns, Functions & Algebra

Grade 5-7 Benchmarks: F. Use representations, such as tables, graphs and equations, to model situations and to solve problems, especially those that involve linear relationships. K. Graph linear equations and inequalities.

Content Organizer: Use Algebraic Representations # 5 Content Organizer # 10, 11

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>5. Represent linear equations by plotting points in the coordinate plane.</p> <p>10. Analyze linear and simple nonlinear relationships to explain how a change in one variable results in the change of another.</p> <p>11. Use graphing calculators or computers to analyze change; e.g., distance-time relationships.</p>	<p>#7 Subscale Patterns, Functions and Algebra</p> <p>Basic understanding of linear/non-linear functions</p> <p>Slope of a line, characteristics of graphs, differences between graphs of linear/non-linear functions</p> <p>Ex. Relate equation to its graph, graph to equation, recognize connection between slope and real-world situation</p> <p>Recognize/use equivalent ideas--zeros of functions, roots of equations, and/or solution of an equation</p> <p>Non-linear functions--recognize graphs (quadratics, exponential growth/decay)</p> <p>Interpret graphs</p> <p>Plot points-- distinguish linear/non-linear relationships</p> <p>Note: quadratic functions will have integer solutions</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Variables and Patterns”</p> <p>Investigation 3 (pp. 36-41) Analyzing Graphs and Tables - Problems 3.1-3.4 Additional Practice # 1-3 (p. 136)</p> <p>Investigation 4 (pp. 49-53) Patterns and Rules - Problems 4.1-4.3 p. 60i Nonlinear relationship</p> <p>Investigation 5 (pp. 61-63) Using a Graphing Calculator - Problems 5.1 and 5.2 Additional Practice (p. 139) # 5 and # 1-3</p> <p>II. Teacher Reference: <i>Algebra to Go</i> (Sections 219-220, 448)</p>	<p>Use coordinating graphing boards</p> <p>Use a graphing calculator</p> <p>Use a T-chart to generate x and y values of ordered pairs</p> <p>See Appendix (p. 8) for remediation</p>	<p>I. <i>Connected Mathematics</i> ACE Questions (pp. 42-46) # 1-9</p> <p>ACE Questions (pp. 54-58) # 1-11</p> <p>ACE Questions (pp. 64-65) # 1-4</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Patterns, Functions & Algebra

Grade 5-7 Benchmarks: F. Use representations, such as tables, graphs and equations, to model situations and to solve problems, especially those that involve linear relationships. J. Use formulas in problem-solving situations. K. Graph linear equations and inequalities.

Content Organizer: Use Algebraic Representations

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>6. Represent inequalities on a number line or a coordinate plane.</p>	<p>#5 Subscale Patterns, Functions and Algebra</p> <p>Use algebraic equations and inequalities to solve problems</p> <p>Equations and inequalities may involve whole numbers, decimals, fractions, and integers</p> <p>Systems of equations will be limited to two variables</p> <p>Formulate equations and inequalities to represent a problem situation, then solve</p>	<p>I. Secondary Resource Practical Mathematics Chapter 14 “Equations” Lesson 14.5 (pp. 406-407) Equations and Inequalities Lesson 14.6 (pp. 408-409) Graphing Points on a Line</p> <p>II. Teacher Reference: <i>Algebra to Go</i> (Sections 191-204)</p>	<p>Prepared number lines and coordinate grids can be found in Connected Mathematics “Accentuate the Negative” (pp. 133 and 136)</p> <p>Adjust directions for Lesson 14.5 to meet the stated indicator</p>	

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Patterns, Functions & Algebra
Grade 5-7 Benchmarks: G. Write, simplify and evaluate algebraic expressions.
Content Organizer: Use Algebraic Representations

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>7. Justify that two forms of an algebraic expression are equivalent, and recognize when an expression is simplified; e.g., $4m = m + m + m + m$ or $a \cdot 5 + 4 = 5a + 4$.</p>	<p>#4 Subscale Patterns, Functions and Algebra</p> <p>Understand algebraic expressions/formulas</p> <p>Represent mathematical/real-world situations algebraically</p> <p>Construct and apply expressions/equations</p> <p>Identify meaning of expressions/formulas</p> <p>Apply order of operations and laws of exponents</p>	<p>I. Teacher Reference: <i>Algebra To Go</i> (Sections 103-107)</p> <p>II. Teacher Reference: Amsco's <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 74-76)</p>	<p>Define “like terms”</p> <p>Stress that x and x^2 are not like terms even though they contain the same variable.</p> <p>Introduce use of distributive property to combine like terms.</p> <p>Encourage students to write out all steps when simplifying an expression. This may seem unnecessary with simple expressions but will help students avoid errors when more complex expressions are assigned.</p>	

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Patterns, Functions & Algebra
Grade 5-7 Benchmarks: J. Use formulas in problem-solving situations.
Content Organizer: Use Algebraic Representations

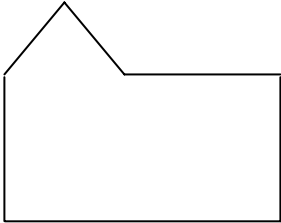
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
8. Use formulas in problem-solving situations.	<p>#4 Subscale Patterns, Functions and Algebra</p> <p>Understand algebraic expressions/formulas</p> <p>Represent mathematical/real-world situations algebraically</p> <p>Construct and apply expressions/equations</p> <p>Identify meaning of expressions/formulas</p> <p>Apply order of operations and laws of exponents</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Filling and Wrapping” Investigation 1 (pp. 5-14) Building Boxes Investigation 2 (pp. 15-23) Designing Packages Investigation 3 (pp. 24-36) Finding Volumes of Boxes Investigation 4 (pp. 37-45) Cylinders Investigation 5 (pp. 46-56) Cones and Spheres Investigation 6 (pp. 57-67) Scaling Boxes</p>	<p>Create a working list of formulas to be kept in the students’ notebooks. Include/formulas on Mathematics Reference Sheet from the OGT Practice Test (See Appendix p.2)</p>	

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Patterns, Functions & Algebra
Grade 5-7 Benchmarks: J. Use formulas in problem-solving situations.
Content Organizer: Use Algebraic Representations

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>8. Use formulas in problem-solving situations.</p>	<p>#4 Subscale Patterns, Functions and Algebra</p> <p>Understand algebraic expressions/formulas</p> <p>Represent mathematical/real-world situations algebraically</p> <p>Construct and apply expressions/equations</p> <p>Identify meaning of expressions/formulas</p> <p>Apply order of operations and laws of exponents</p>	<p>I. Accelerated Math</p> <p>II. Teacher Reference: <i>Algebra to Go</i> (Section 471)</p> <p>III. Teacher Reference: Amsco's <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 85-87)</p>	<p>Include combinations of shapes, such as:</p> <div style="text-align: center;">  </div>	<p>III. Practical Mathematics Chapter 12 Test (p. 359)</p> <p>Chapter 14 (p. 405) # 7-11</p> <p>IV. Computer-generated test</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Patterns, Functions & Algebra Grade 5-7 Benchmarks: D. Use symbolic algebra to represent and explain mathematical relationships. Content Organizer: Use Algebraic Representations				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
9. Recognize a variety of uses for variables; e.g., placeholder for an unknown quantity in an equation, generalization for a pattern, formula.	#4 Subscale Patterns, Functions and Algebra Understand algebraic expressions/formulas Represent mathematical/real-world situations algebraically Construct and apply expressions/equations Identify meaning of expressions/formulas Apply order of operations and laws of exponents	I. Primary Resource <i>Connected Mathematics</i> “Variables and Patterns” (p. 3) Lesson 1.2 (pp. 7-9) Making Graphs II. Primary Resource <i>Practical Mathematics</i> Chapter 14 “Equations” Lesson 14.2 (pp. 400-401) Algebraic Expressions III. See Appendix (pp.22-23) IV. Teacher Reference <i>Algebra to Go</i> (Sections 099-100)	Refer to Connected Mathematics “Variables and Patterns” (p. 1b) Use What’s My Rule? Game to introduce students algebraic thinking (variables) through making generalizations, using words first, then symbols. (See Appendix pp Record results of a pattern in an orderly manner; predict the result for a larger number, such as 100; make a generalization in words, then symbols.	I. Connected Mathematics ACE Questions (pp. 10-12) # 1-3 III. Practical Mathematics Quiz (p. 401) # 1-6 in Follow-Up Activity

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Data Analysis & Probability

Grade 5-7 Benchmarks: A. Read, create, and use line graphs, histograms, circle graphs, box-and-whisker plots, stem-and-leaf plots, and other graphs when appropriate.

Content Organizer: Data Collection

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment												
<p>1. Read, create and interpret box-and-whisker plots, stem-and-leaf plots, and other types of graphs, when appropriate.</p>	<p># 12 Subscale Data Analysis and Probability</p> <p>Interpret/analyze information from visual representations- line, bar, circle graphs, histograms, stem and leaf, box and whisker, scatter plots, charts, and tables.</p> <p>Identify patterns/trends, and draw conclusions.</p> <p>Select appropriate kind of graph, determine suitable scale, create appropriate display of given data.</p>	<p>Enrichment (p. 118) Scattergrams</p> <p>Practice, Re-teaching and Activity book Practice (p. 38) Re-teaching (p. 23)</p> <p>Chapter 5 Fractions Lesson 5.9 (p. 139) Divided Stacked Bar Graph</p> <p>VI. Extending Resource Connected Mathematics “What Do You Expect?” Investigation 1 (pp. 5-6) What’s in the Bucket? Lesson 1.1</p> <p>VI. Accelerated math</p> <p>VII. See Appendix (pp. 20-21)</p> <p>VIII. Teacher Reference: Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 188-192), 356-357)</p> <p>IX. Teacher Reference: <i>Algebra to Go</i> (Sections 348-363)</p>	<p>Introduce term: line of best fit.</p> <p>In whole group, have students create a frequency table on the board as the students complete the experiment. Use this frequency table form:</p> <table border="1" data-bbox="1199 656 1612 808"> <thead> <tr> <th>Color</th> <th>Tally</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>red</td> <td></td> <td></td> </tr> <tr> <td>blue</td> <td></td> <td></td> </tr> <tr> <td>yellow</td> <td></td> <td></td> </tr> </tbody> </table> <p>Point out the difference between a frequency table and a frequency histogram.</p>	Color	Tally	Frequency	red			blue			yellow			<p>Practical Mathematics Mid-Chapter Review (p. 104) # 1-10 Chapter Review (p. 116) # 15-18 Chapter Test (p. 117) # 1, 6-8</p> <p>Teacher-created test question: The number of CDs owned by each of 15 adults are 12, 18, 24, 13, 12, 9, 27, 15, 12, 8, 17, 12, 9, 17, 10</p> <ol style="list-style-type: none"> Create a frequency table showing this data Make a line plot showing this data Determine the mean, mode, median and range of this data. <p>V. Connected Mathematics “What do You Expect?” ACE Question (p. 19) # 17a-b</p>
Color	Tally	Frequency														
red																
blue																
yellow																

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Data Analysis & Probability.

Grade 5-7 Benchmarks: E. Collect, organize, display and interpret data for a specific purpose or need.

Content Organizer: Data Collection

Grade level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>2. Analyze how decisions about graphing affect the graphical representation; e.g., scale, size of classes in a histogram, number of categories in a circle graph.</p> <p>4. Construct opposing arguments based on analysis of the same data, using different graphical representations.</p>	<p># 12 Subscale Data Analysis and Probability</p> <p>Interpret/analyze information from visual representations-line, bar, circle graphs, histograms, stem and leaf, box and whisker, scatter plots, charts, and tables.</p> <p>Identify patterns/trends, draw conclusions.</p> <p>Select appropriate kind of graph, determine suitable scale, create appropriate display of given data.</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Variables and Patterns” Investigation 1 (pp. 7-9) Lesson 1.2</p> <p>II. Secondary Resource <i>Practical Mathematics</i> Chapter 4 “Statistics” Lesson 4.8 (pp. 106-107) Bar Graphs Lesson 4.9 (pp. 108-109) Line Graphs</p> <p>III. Teacher Reference: <i>Algebra to Go</i> (Section 346)</p>	<p>Point out that the largest number on the scale must be greater than the largest number in the data set.</p> <p>The scale intervals must be large enough to show the data clearly but small enough to fit the graph in the allotted space.</p> <p>To determine a scale: <i>Greatest data value</i> = number of scale markings <i>interval</i></p>	<p>I. <i>Connected Math</i> ACE Questions (pp. 12-14) # 4-5</p> <p>II. Practice, Reteaching, and Activity Book Practice (p. 45) # 3-6</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Data Analysis & Probability Grade 5-7 Benchmarks: None Content Organizer: Statistical Methods				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
3. Analyze a set of data by using and comparing combinations of measures of center (mean, mode, median) and measures of spread (range, quartile, interquartile range), and describe how the inclusion or exclusion of outliers affects those measures.	# 13 Subscale Data Analysis and Probability Understand mean, median, mode, and range Describe data using measures of central tendency or range Determine which measure (central tendency) gives the best description Describe variability Draw line to represent trend in scatter plot	I. Primary Resource <i>Connected Mathematics</i> “Data Around Us” Investigation 5 (pp. 52-53) Every Litter Bit Hurts Lessons 5.2 and 5.3 II. Remediation <i>Practical Mathematics</i> Chapter 4 “Statistics” Lesson 4.4 (p. 99) Mean #1-12 Lesson 4.5 Range, Median and Mode (p. 101) #1-28 III. Appendix (pp.24-25) Preference Survey IV. Accelerated Math V. Teacher Reference: Algebra to Go (Sections 333-338) VI. Teacher Reference: Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 367-372)	Mean, Median, and Mode are all types of averages Follow a sports team and compute statistics Can use World Series, NCAA Tournament, local basketball team etc. Students compute their own grade averages Point out that when there is a large range for a small data set, the mean is often misleading	I. Connected Mathematics “Data Around Us” ACE Questions (pp. 55-57) #1-4 II. Practical Mathematics Chapter 4 Review (p. 116) #1-14 Chapter 4 Test (p. 117) #1-5 III. Computer-generated test

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Data Analysis & Probability Grade 5-7 Benchmarks: D. Compare increasingly complex displays of data, such as multiple sets of data on the same graph. Content Organizer: Statistical Methods				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
5. Compare data from two or more samples to determine how sample selection can influence results.	# 14 Subscale: Data Analysis and Probability Basic concepts of probability Use counting procedures-- listing, ordering, tree diagrams. multiplication principle Solve problems--simple or compound events, complementary probabilities, independent and simple dependent events Compare experimental/theoretical probabilities Determine sample space	I. Primary Resource <i>Practical Mathematics</i> Chapter 10 “Probability” Lesson 10.8 (pp. 282-283) Sampling and Quality Control II. Teacher Reference: <i>Algebra to Go</i> (Sections 326-327) III. Teacher Reference: Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 355-356)	Conduct a class survey dealing with favorite types of music: Rock, gospel, rap, jazz, oldies, heavy metal, country Create a circle graph to illustrate the percent of students favoring each type of music Conduct the same survey with students’ grandparents Create a circle graph to illustrate the percent of grandparents favoring each type of music Compare data from the two surveys	I. Students explain in writing: How does sample selection influence data results? Give a specific example.

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Data Analysis & Probability

Grade 5-7 Benchmarks: None

Content Organizer: Statistical Methods

Grade level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>6. Identify misuses of statistical data in articles, advertisements, and other media.</p>	<p># 12 Subscale Data Analysis and Probability</p> <p>Interpret/analyze information from visual representations- line, bar, circle graphs, histograms, stem and leaf, box and whisker, scatter plots, charts, and tables.</p> <p>Identify patterns/trends, draw conclusions.</p> <p>Select appropriate kind of graph, determine suitable scale, create appropriate display of given data.</p>	<p>I. Primary Resource <i>CORD Bridges</i> Chapter 2 “Working With Data” Lesson 2.7 (pp. 108-110)</p>	<p>Collect examples of statistical data used in magazines, articles, and advertisements.</p> <p>Class discussion: Is the data accurately represented?</p>	<p>II. CORD Bridges (pp. 112-113) # 1-16 (pp. 114) # 27-29 (pp. 115) # 30-34</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Data Analysis & Probability.

Grade 5-7 Benchmarks: I. Describe the probability of an event using ratios, including fractional notation.

Content Organizer: Probability

Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
<p>7. Compute probabilities of compound events; e.g., multiple coin tosses or multiple rolls of number cubes, using such methods as organized lists, tree diagrams and area models.</p>	<p># 14 Subscale: Data Analysis and Probability</p> <p>Basic concepts of probability</p> <p>Use counting procedures--listing, ordering, tree diagrams. multiplication principle</p> <p>Solve problems--simple or compound events, complementary probabilities, independent and simple dependent events</p> <p>Compare experimental/theoretical probabilities</p> <p>Determine sample space</p>	<p>I. Primary Resource “What do you Expect?” Investigation 3 (pp. 32-35) Lessons 3.1 (pp. 32-34) Cracking Level 1 Lesson 3.2 (pp. 34-35) Cracking Level 2 Investigation 4 (pp. 41-44) Lesson 4.1 (pp. 41-43) Choosing Paths Lesson 4.2 (pp. 43-44) Finding the Best Arrangement Investigation 5 (pp. 50-52) Lesson 5.1 (pp. 50-51) Shooting the One-and-One Lesson 5.2 (pp. 51-52) Finding Expected Value Investigation 6 (pp. 59-63) Carnival Games Lesson 6.1 (pp. 59-60) Drawing Marbles Lesson 6.2 (pp. 60-61) Choosing the Best Game Lesson 6.3 (pp. 61-63) Taking a Computer Safari Investigation 7 (pp. 69-73) Analyzing Sequences of Outcomes Lesson 7.1 Counting Puppies (pp. 69-70) Lesson 7.2 (pp. 70-73) Guessing Answers</p>	<p>A compound event consists of two or more simple events. Choosing a skirt is a simple event. Choosing a blouse is a simple event. But choosing a skirt and a blouse is a compound event.</p>	<p>I. Connected Math <i>Investigation 3</i> ACE Questions (pp. 36-38) # 1, 5 Quiz A (pp. 85-86) # 2</p> <p style="text-align: center;"><i>Investigation 4</i></p> <p>ACE Questions (pp. 45-48) # 1-4, 6-7</p> <p style="text-align: center;"><i>Investigation 5</i></p> <p>ACE Questions (p. 53) # 1-2 (Use an area model as part of the solution.) Check up 2 (p. 87) <i>Investigation 6</i> Quiz B (p. 89)</p> <p style="text-align: center;"><i>Investigation 7</i></p> <p>ACE Questions (pp. 74-77) Teacher-selected questions.</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Data Analysis & Probability Grade 5-7 Benchmarks: K. Make and justify predictions based on experimental and theoretical probabilities. Content Organizer: Probability				
Grade level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
8. Make predictions based on theoretical probabilities, design and conduct an experiment to test the predictions, compare actual results to predicted results, and explain differences.	<p># 14 Subscale: Data Analysis and Probability</p> <p>Basic concepts of probability</p> <p>Use counting procedures-- listing, ordering, tree diagrams. multiplication principle</p> <p>Solve problems--simple or compound events, complementary probabilities, independent and simple dependent events</p> <p>Compare experimental/theoretical probabilities</p> <p>Determine sample space</p>	<p>I. Primary Resource “What do you Expect?” Investigation 2 (pp. 22-23) Lesson 2.1 (pp. 22-23) Playing the Addition Game Lesson 2.2 (p. 23) Playing the Multiplication Game ACE Question (p. 26) # 10</p> <p>Investigation 7 (pp. 70-73) Analyzing Sequences of Outcomes Lesson 7.2</p> <p>II. Teacher Reference: Amsco’s <i>Preparing for Qualifying Examinations in Mathematics</i> (pp. 380-382)</p> <p>III. Teacher Reference: <i>Algebra to Go</i> (Sections 323-324 and 327)</p>	<p>In small groups, relate frequency tables to percent. Use the problem and table given to answer these questions: What percent of the time did the bottles both land on the side? Both standing up? One on the side and one standing up?</p> <p>Relate frequency table to a line plot. (See TE P. 78d). Determine percent of students who answered 0, 1, 2, 3, and 4 questions correctly. Determine mean, median, mode, and range of a set of data.</p> <p>EX. $\frac{3}{24} = \frac{\%}{100}$</p>	<p>I. Connected Math (p. 21) Requires short-answer responses.</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

<p>Content Standard: Data Analysis & Probability. Grade 5-7 Benchmarks: I. Describe the probability of an event using ratios, including fractional notation. Content Organizer: Probability</p>				
Grade level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
7. Compute probabilities of compound events; e.g., multiple coin tosses or multiple rolls of number cubes, using such methods as organized lists, tree diagrams and area models.	<p># 14 Subscale: Data Analysis and Probability</p> <p>Basic concepts of probability</p> <p>Use counting procedures-- listing, ordering, tree diagrams. multiplication principle</p> <p>Solve problems--simple or compound events, complementary probabilities, independent and simple dependent events</p> <p>Compare experimental/theoretical Probabilities</p> <p>Determine sample space</p>	<p>I. Accelerated Math</p> <p>II. Teacher Reference: Algebra to Go (Section 329)</p>	<p>Draw a tree diagram</p> <p>Work in teams with chart paper to illustrate</p> <p>Relate to organized lists</p> <p>Provide a mini-lesson</p>	<p>I. Computer-generated test</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.

Mathematics – Grade 7

Adams County/Ohio Valley
Course of Study

Content Standard: Data Analysis & Probability Grade 5-7 Benchmarks: A. Read, create, and use line graphs, histograms, circle graphs, box-and-whisker plots, stem-and-leaf plots, and other graphs when appropriate. Content Organizer: Data Collection				
Grade Level Indicator	OGT Competency Focus	Resources	Instructional Activities/Strategies	Assessment
1. Read, create and interpret box-and-whisker plots, stem-and-leaf plots, and other types of graphs, when appropriate.	<p># 12 Subscale Data Analysis and Probability</p> <p>Interpret/analyze information from visual representations-line bar, circle graphs, histograms, stem and leaf, box and whisker, scatter plots, charts, and tables.</p> <p>Identify patterns/trends, and draw conclusions.</p> <p>Select appropriate kind of graph, determine suitable scale, create appropriate display of given data.</p>	<p>I. Primary Resource <i>Connected Mathematics</i> “Variables and Patterns” Investigation 1 (pp. 7-9) Variables and Coordinate Graphs Lessons 1.1 and 1.2 Investigation 2 (pp. 18-24) Graphing Change Lesson 2.1-2.4</p> <p>II. Primary Resource <i>Connected Mathematics</i> “Comparing and Scaling” Investigation 4 (p. 37-39) Comparing by Finding Rates Lesson 4.2 (pp. 40-41) Using Unit Rates Lesson 4.3 (p. 42) Solving Problems with Rates</p> <p>III. Secondary Resource Practical Mathematics Chapter 4 “Statistics” Lesson 4.1 (pp. 92-94) Collecting Data Lesson 4.3 (pp. 96-97) Reading and Interpreting Data Lesson 4.8 (pp. 106-107) Bar Graphs Lesson 4.9 (pp. 128-109) Line Graphs Lesson 4.11 (pp. 112-113) Pictographs</p>	<p>Conduct surveys and graph data</p> <p>Point out uses of various types of graphs</p> <p>Practice taking surveys and organize data into frequency tables (Ex. favorite color, number of siblings, favorite color, number of siblings, favorite sport).</p> <p>Introduce sample as a smaller group that is representative of a larger group.</p> <p>Extend instruction to include histograms (grouped-frequency tables)</p>	<p>I. Connected Mathematics “Variables and Patterns” ACE Questions (p. 10) # 1 (p. 26) # 1 (p. 42) # 1-2</p> <p>II. Connected Mathematics “Comparing and Scaling” Problem 4.1 (p. 39)*</p> <p>III. Practical Mathematics Chapter 4 Form A (p. 1) Test Book Questions # 1-4 Chapter 4 Form B Test Book Questions # 1-4</p>

Mathematical Processes Standard – Students use mathematical processes and knowledge to solve problems. Students apply problem-solving and decision-making techniques, and communicate mathematical ideas. Mathematical processes are used in all content areas and should be incorporated within instruction and assessment of the content-specific standards and benchmarks.