

## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students demonstrate number sense, including an understanding of number systems and operations and how they relate to one another. Students compute fluently and make reasonable estimates using paper and pencil, technology-supported and mental methods.

**Benchmark: B. Recognize and generate equivalent representations for whole numbers, fractions and decimals.**

**Content Organizer:** *Number and Number Systems*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
1. Identify and generate equivalent forms of whole numbers; e.g., 36, 30 + 6 9 x 4 46 – 10, number of inches in a yard.	<ul style="list-style-type: none"> <li>• Have students generate equations when given a number, such as a number of the day.</li> <li>• Given a money amount (example 50¢) have the students manipulate different sets of coins to equal the given amount (50¢= 5 dimes, 2 quarters, etc.) (Can use with overhead activity)</li> <li>• Using hands-on manipulatives, such as linking cubes (such as 30) and have the students move the cubes to find different number equations for the given number (such as if there are 10 in this pile, there must be 20 in another pile and 10+20=30)</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin p. 58</li> <li>• Houghton Mifflin Overhead Teaching Activity 2-3</li> <li>• Manipulatives                             <ul style="list-style-type: none"> <li>• -Coins</li> <li>• -Cubes</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Observe students during math meeting to see if they can generate an equivalent form of a given number such as the problem of the day.</li> <li>• Observe students working with cubes/money to see if they can find different forms/equations of a given number.</li> <li>• Give the students several numbers and have them generate different forms of numbers by adding, subtracting, multiplying and dividing.</li> </ul>

**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**

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**Content Standard:** Students demonstrate number sense, including an understanding of number systems and operations and how they relate to one another. Students compute fluently and make reasonable estimates using paper and pencil, technology-supported and mental methods  
**Benchmark:** A. Use place value structure of the base-ten number system to read, write, represent and compare whole numbers and decimals.  
**Content Organizer:** *Number and Number Systems*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>2. Use place value concepts to represent whole numbers and decimals using numerals, words, expanded notation, and physical models. For example:</p> <p>(a) Recognize 100 means “10 tens” as well as a single entity (1 hundred) through physical models and trading games.</p> <p>(b) Describe the multiplicative nature of the number system; e.g., the structure of 3205 as <math>3 \times 1000</math> plus <math>2 \times 100</math> plus <math>5 \times 1</math>.</p> <p>(c) Model the size of 1000 in multiple ways; e.g., packaging 1000 objects into 10 boxes of 100; modeling a meter with centimeter and decimeter strips, or gathering 1000 pop-can tabs.</p> <p>Explain the concept of tenths and hundredths using physical models as metric pieces, base ten blocks, decimal squares, or money.</p>	<ul style="list-style-type: none"> <li>• Use base ten blocks to show students place value.</li> <li>• Have students play “What’s My Number?” (Each player secretly writes down a 3-digit number and the players take turns asking questions to find the other’s number, such as “Is the digit in the hundreds place greater than 5?”)</li> <li>• Play “Even and Odd, break the Code,” and “What’s the Number” (Houghton Mifflin p. 27)</li> <li>• Have the students generate a number in standard form, word form, and expanded form.</li> <li>• Have students generate numbers in a place-value chart.</li> <li>• Have students relate money for tenths and hundredths.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin p. 2-3, 11, 27, 32-35, 54-55, 512-515</li> <li>• Houghton Mifflin Overhead Teaching Activities 1-1, 1-5, 1-6, 1-7, 1-8, 1-11, 1-12, 2-1, 11-12, 11-13</li> <li>• Manipulatives -Base ten blocks -Money -Number chart -Place Value chart</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students several numbers and have them put each number in a place value chart and write each number in numerals, words, expanded notation, and as a physical model or picture.</li> <li>• Observe the students as they play the games.</li> </ul>

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**Benchmark:** A. Use place value structure of the base-ten number system to read, write, represent and compare whole numbers and decimals. D. Use models, points of reference and equivalent forms of commonly used fractions to judge the size of fractions and to compare, describe and order them.

**Content Organizer:** *Number and Number Systems*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
3. Use mathematical language and symbols to compare and order; e.g., less than, greater than, at most, at least, $<$ , $>$ , $\leq$ , $\geq$ .	<ul style="list-style-type: none"> <li>• Have students compare numbers on a number line, then use <math>&lt;</math>, <math>&gt;</math>, <math>=</math>, or ordering</li> <li>• Have students compare numbers by putting them in place-value charts, then use <math>&lt;</math>, <math>&gt;</math>, <math>=</math> or ordering</li> <li>• Play “Greatest Number Game” (Houghton Mifflin Challenge 1-8, p. 7)</li> <li>• Play “Greatest and Least” (Houghton Mifflin Challenge 1-8, p. 8)</li> <li>• Arrange dates in order using a time line.</li> <li>• Do the “Missing Unit” activity (p. 167)</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin p. 20-23, 73, 166-167, 518-519</li> <li>• Houghton Mifflin Overhead Teaching Activity 1-7</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Number line</li> <li>• Place-value chart</li> </ul>	<ul style="list-style-type: none"> <li>• Give students numbers to compare using the <math>&lt;</math>, <math>&gt;</math>, <math>=</math> symbols</li> <li>• Give the students lists of numbers and have them put them in order from least to greatest or greatest to least.</li> <li>• Observe the students playing the games.</li> </ul>

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**Benchmark:** F. Count money and make change using both coins and paper bills.

**Content Organizer:** *Number and Number Systems*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
4. Count money and make change using coins and paper bills to ten dollars.	<ul style="list-style-type: none"> <li>• Show students the different coins and bills and review their values.</li> <li>• Give the students an amount of money and have them identify the value.</li> <li>• Play “Count It Up” p. 61</li> <li>• Do Challenge 2-2 and 2-3 (Spending Money p. 15 and Vending variations p. 16)</li> <li>• Have students count change by either counting up from the cost of item to the amount paid or subtracting (amount given to cashier) the cost from the amount paid.</li> <li>• Do challenge 2-4, p. 17 Find the Face.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 54-63</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Coins and bills</li> </ul>	<ul style="list-style-type: none"> <li>• Observe the students counting bills and coins and making change</li> <li>• Give the students a list of coins or a picture of coins to count.</li> <li>• Give the students a money amount that was spent and have the students make change using coins or subtracting.</li> </ul>

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**Benchmark:** C. Represent commonly used fractions and mixed numbers using words and physical models.

**Content Organizer:** *Number and Number Systems*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
5. Represent fractions and mixed numbers using words, numerals and physical models.	<ul style="list-style-type: none"> <li>• Give students a geometric shape and have them fold it to show equal parts and label them.</li> <li>• Draw a picture of a geometric shape and have students divide it into equal parts and shade different fractions.</li> <li>• Use activity on Houghton Mifflin p. 486 to find equal parts of a group to write a fraction.</li> <li>• Challenge Activity 11-1 Make Your Own Flag p. 123</li> <li>• Overhead Activities 11-1 and 11-2</li> <li>• Have students write fractions using words and numerals (numerator and denominator)</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 482-487 and p. 502-503</li> <li>• Houghton Mifflin Overhead Teaching Activities</li> <li>• Houghton Mifflin Challenge workbook</li> <li>• Paper shapes</li> </ul>	<ul style="list-style-type: none"> <li>• Observe student folding and drawing and dividing geometric shapes and labeling the fractional parts</li> <li>• Give students pictures of geometric shapes and have them shade a given fractional amount or have them tell what fraction is shaded.</li> </ul>

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**Benchmark: D.** Use models, points of reference and equivalent forms of commonly used fractions to judge the size of fractions and to compare, describe and order them.

**Content Organizer:** *Meaning of Operations*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>6. Compare and order commonly used fractions and mixed numbers using number lines, models (such as fraction circles or bars), points of reference (such as more or less than <math>\frac{1}{2}</math>), and equivalent forms using physical or visual models.</p>	<ul style="list-style-type: none"> <li>• Compare fractions and mixed numbers using a number line, fraction strip, fraction circle or bar, a physical model such as a sidewalk, pie, pizza, tearing pieces of paper, etc. and using points of reference</li> <li>• Challenge Activity 11-4 Riddle Time With Fractions p. 126</li> <li>• Overhead Activities 11-3, 11-4, 11-5, and 11-6</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 488-495</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Overhead Teaching Activities Book</li> <li>• Number line</li> <li>• Fraction strips</li> <li>• Fraction circles/bars</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students several lists of fractions and mixed numbers and have them put each list of numbers in order from least to greatest or greatest to least</li> </ul>

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**Content Organizer:** *Meaning of Operations*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>7. Recognize and use decimal and fraction concepts and notations as related ways of representing parts of a whole or a set; e.g., 3 of 10 marbles are red can also be described as <math>\frac{3}{10}</math> and 3 tenths are red.</p>	<ul style="list-style-type: none"> <li>• Show students different ways to show parts of a whole by using a model (picture), convert it as a fraction, and convert it as a decimal.</li> <li>• Do challenge 11-14 p. 136 “Riddle Time With Decimals Greater than 1”</li> <li>• Overhead Activities 11-14 and 11-15</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 512-519</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Overhead Teaching Activities</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students fractions and have the students convert the fractions into a decimal and a decimal into a fraction</li> <li>• Have the students match a decimal to its corresponding fraction or match the fraction to its decimal equivalent fraction.</li> </ul>

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**Benchmark:** L. Use a variety of methods and appropriate tools (mental math, paper and pencil, calculators) for computing with whole numbers.  
**Content Organizer:** *Meaning of Operations*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>8. Model, represent and explain multiplication; e.g., repeated addition, skip counting, rectangular arrays and area model. For example:</p> <p>(a) Use conventional mathematical symbols to write equations for word problems involving multiplication</p> <p>(b) Understand that, unlike addition and subtraction, the factors in multiplication and division may have different units; e.g., 3 boxes of 5 cookies each.</p>	<ul style="list-style-type: none"> <li>• Show students how to multiply using the strategies of repeated addition, skip counting, rectangular arrays, area models, using a number line, finding a pattern on a number chart.</li> <li>• Challenge 5-1 p. 56 “Symbols at Your Door”</li> <li>• Challenge 5-2 p. 57 “Find the Factors”</li> <li>• Overhead Activities 5-1 to 5-10 and 6-1 to 6-9</li> <li>• Challenge 5-4 p. 59</li> <li>• Challenge 5-7 p. 62</li> <li>• Challenge 5-8 p. 63</li> <li>• Challenge 5-9 p. 65</li> <li>• Challenge 6-1 p. 67</li> <li>• Challenge 6-2 p. 68</li> <li>• Challenge 6-3 p. 69</li> <li>• Challenge 6-5 p. 71</li> <li>• Challenge 6-8 p. 74</li> <li>• Challenge 6-9 p. 75</li> <li>• Have students write multiplication facts as a number sentence.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 210-279</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Overhead Teaching Activities</li> <li>• Manipulatives</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students sets of multiplication problems to solve.</li> </ul>

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<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>9. Model, represent and explain division; e.g., sharing equally, repeated subtraction, rectangular arrays and area model. For example:</p> <p style="padding-left: 20px;">a. Translate contextual situations involving division into conventional mathematical symbols.</p> <p style="padding-left: 20px;">b. Explain how a remainder may impact an answer in a real-world situation; e.g., 14 cookies being shared by 4 children.</p>	<ul style="list-style-type: none"> <li>• Show students how to divide using the strategies of sharing equally (putting into equal groups), repeated subtraction, rectangular arrays, area model, using a number line, using manipulatives, relating it to a multiplication fact.</li> <li>• Have students compose division facts using a number sentence.</li> <li>• Overhead Activities 8-1 to 8-9 and 9-1 to 9-9</li> <li>• Challenge 8-1 p. 92, 8-3 p. 94, 8-7 p. 98, 8-9 p. 100, 9-1 p. 102, 9-2 p. 103, 9-3 p. 104, 9-5 p. 106, 9-6 p. 107, 9-8 p. 109, 9-9 p. 110, 12-10 p. 150,</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 354-419</li> <li>• Houghton Mifflin Overhead Activities Book</li> <li>• Houghton Mifflin Challenge Workbook</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students sets of division problems to solve.</li> </ul>

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**Benchmark:** H. Use relationships between operations, such as subtraction as the inverse of addition and division as the inverse of multiplication.  
**Content Organizer:** *Computation and Estimation*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>10. Explain and use relationships between operations:</p> <p>(a) relate addition and subtraction as inverse operations;</p> <p>(b) relate multiplication and division as inverse operations;</p> <p>(c) relate addition to multiplication (repeated addition).</p> <p>(d) Relate subtraction to division (repeated subtraction).</p>	<ul style="list-style-type: none"> <li>• Show students how to use operations inversely to check their work (inverse operations, Ex. <math>13 + 5 = 18</math>, <math>18 - 5 = 13</math>, <math>18 - 13 = 5</math>)</li> <li>• Relate multiplication and division by using arrays.</li> <li>• Show students the relationships between multiplication and addition by repeated addition using a number line or manipulatives</li> <li>• Show students the relationship between division and subtraction by repeated subtraction using a number line or manipulatives.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin p. 132-133, 356-358, 212-213, 359-362</li> </ul>	<ul style="list-style-type: none"> <li>• Have students check their work using inverse operations.</li> <li>• Observe students using manipulatives to show the concepts of inverse operations, repeated addition, and repeated subtraction.</li> </ul>

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**Benchmark:** G. Model and use commutative and associative properties for addition and multiplication.

**Content Organizer:** *Computation and Estimation*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
11. Model and use the commutative and associative properties for addition and multiplication.	<ul style="list-style-type: none"> <li>• Show students the commutative and associative properties for addition and multiplication using pictures, manipulatives, and fact families or a calculator.</li> <li>• Challenge 3-1 p. 26</li> <li>• Challenge 5-2 p. 57</li> <li>• Overhead Activity 3-1</li> <li>• Overhead Activity 5-2</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 102-103, pp. 214-217</li> <li>• Houghton Mifflin Overhead Activity book</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Manipulatives</li> <li>• Calculators</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students problems that show the commutative and associative properties and have them identify the type of property shown.</li> <li>• Have the student show examples of the commutative and associative properties and illustrate how to solve the examples.</li> </ul>

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**Benchmark:** K. Analyze and solve multi-step problems involving addition, subtraction, multiplication and division using whole numbers.  
**Content Organizer:** *Computation and Estimation*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
12. Add and subtract whole numbers with and without regrouping.	<ul style="list-style-type: none"> <li>• Show students regrouping using base ten blocks</li> <li>• Show students different addition methods on p. 107 of text (Adding in Different Ways)</li> <li>• Play “Add It Up!” p. 119</li> <li>• Show students different subtraction methods on p. 131 of text (Subtracting in Different Ways)</li> <li>• Challenge 3-2 p. 27, 3-3 p. 28, 3-6 p. 31, 3 -7 p. 32, 3-8 p. 33, 3 -9 p. 34, 3 -10 p. 35, 3 -11 p. 36, 3 -13 p. 38, 3-14 p. 39</li> <li>• Overhead Activities 3-2 to 3-3 and 3-6 to 3-11 and 3-13 to 3-14</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin p. 102-121 and 126-141</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Overhead Activities Book</li> <li>• Base Ten Blocks</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students sets of addition and subtraction problems with and without regrouping and have them solve them.</li> <li>• Observe students playing an addition or subtraction game.</li> </ul>

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**Benchmark:** I. Demonstrate fluency in multiplication facts with factors through 10 and corresponding divisions. J. Estimate the results of whole number computations using a variety of strategies, and judge the reasonableness.

**Content Organizer:** *Computation and Estimation*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
13. Demonstrate fluency in multiplication facts through 10 and corresponding division facts.	<ul style="list-style-type: none"> <li>• Review and drill multiplication and division strategies, such as skip counting , repeated addition/subtraction, arrays, area model, number line, manipulatives, flash cards, relating the two operations, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin Resource Book Just the Facts pp. 87-130 and 137-142</li> <li>• Houghton Mifflin Teacher Resource Book Fast Facts Practice pp. 71-78</li> <li>• Houghton Mifflin pp. 210-279 and 354-419</li> <li>• Manipulatives</li> <li>• Flash Cards</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students times facts sheets of multiplication and division problems</li> <li>• Observe students using flash cards</li> </ul>

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**Benchmark:** K. Analyze and solve multi-step problems involving addition, subtraction, multiplication and division using whole numbers.  
**Content Organizer:** *Computation and Estimation*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
14. Multiply and divide 2- and 3-digit numbers by a single-digit number, without remainders for division.	<ul style="list-style-type: none"> <li>• Show the students how to multiply 2 and 3 digit numbers by using base ten blocks or the multiplication algorithm to regroup or by using the distributive property and partial products.</li> <li>• Show the students division with 2 and 3 digit numbers by using base ten blocks and regrouping.</li> <li>• Challenge 12-2 p. 142, Challenge 12-4 p. 144, Challenge 12-5 p. 145, Challenge 12-6 p. 146, Challenge 12-8 p. 148, Challenge 12-9 p. 149, Challenge 12-11 p. 151, Challenge 12-13 p. 153</li> <li>• Overhead activities 12-1 to 12-14</li> <li>• Play “Remember Race” p. 569</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 544-581</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Overhead Activities book</li> <li>• Base-ten blocks</li> <li>• Game board/number cube</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students sets of multiplication and division problems and have them solve them.</li> <li>• Observe students playing a game involving multiplication or division</li> </ul>

**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 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students demonstrate number sense, including an understanding of number systems and operations and how they relate to one another. Students compute fluently and make reasonable estimates using paper and pencil, technology-supported and mental methods  
**Benchmark:** J. Estimate the results of whole number computations using a variety of strategies, and judge the reasonableness.  
**Content Organizer:** *Computation and Estimation*

<i>Grade Level Indicator(s)</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
15. Evaluate the reasonableness of computations based upon operations and the numbers involved; e.g., considering relative size, place value and estimates.	<ul style="list-style-type: none"> <li>• Show students how to check for reasonable answers using estimation</li> <li>• Problem-solving skill: Estimated or exact amounts p. 12-13</li> <li>• Problem-solving skill: Exact answer or estimate p. 112-113</li> <li>• Challenge 3-12 p. 37</li> <li>• Challenge 4-1 p. 41</li> <li>• Overhead Activity 4-1, 4-4, 4-9</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 12-13, 110-113, 134-135, 160-191</li> <li>• Houghton Mifflin Overhead Teaching Activities</li> <li>• Houghton Mifflin Challenge Workbook</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students problems (add, subtract, etc.) and have them identify an estimate for the answer.</li> </ul>

**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 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students estimate and measure to a required degree of accuracy and precision by selecting and using appropriate units, tools and technologies.  
**Benchmark:** Select appropriate units for perimeter, area, weight, volume (capacity), time and temperature using: objects of uniform size; U.S. customary units; e.g., mile, square inch, cubic inch, second degree Fahrenheit, and other units as appropriate; metric units; e.g., millimeter, kilometer, square centimeter, kilogram, cubic centimeter, degree Celsius, and other units as appropriate.

**Content Organizer:** *Measurement Units*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>1. Identify and select appropriate units for measuring:</p> <p>(a) length use – miles, kilometers and other units of measure as appropriate;</p> <p>(b) volume (capacity) – gallons;</p> <p>(c) weight – ounces, pounds, grams, or kilograms;</p> <p>(d) temperature – degrees (Fahrenheit or Celsius).</p>	<ul style="list-style-type: none"> <li>• The students can experience these concepts through hands-on activities. Ex. Have students use a ruler, yard stick, meter stick, cups, gallons, scale, thermometer, etc. in order to experience each unit of measure.</li> <li>• Play “Match the Measure” on p. 175 Houghton Mifflin text.</li> <li>• Challenge 4-7 p. 47</li> <li>• Challenge 4-10 p. 50</li> <li>• Overhead Activities 4-1 to 4-14</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 160-193</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Overhead Teaching Activities Book</li> <li>• Rulers, yard stick, meter stick</li> <li>• Cup, pint, quart, half-gallon, liter, etc. containers</li> <li>• Scale, balance, gram and kilogram weights</li> <li>• thermometers</li> </ul>	<ul style="list-style-type: none"> <li>• Observe students using the hands-on materials</li> <li>• Give students an object to be measured and have the students choose the correct instrument to measure it.</li> <li>• Give students pictures of thermometers and have them read the temperature.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students estimate and measure to a required degree of accuracy and precision by selecting and using appropriate units, tools and technologies.

**Benchmark:** C. Develop common referents for units of measure for length, weight, volume (capacity) and time to make comparisons and estimates.

**Content Organizer:** *Measurement Units*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
2. Establish personal or common referents to include additional units; e.g., a gallon container of milk; a postage stamp is about a square inch.	<ul style="list-style-type: none"> <li>• Bring in common everyday items that represent standard units of measurement, such as a gallon jug of milk, lunch milk carton = 1 cup, postage stamp = 1 sq. in., Wheat thin = 1 sq. in., etc.</li> <li>• Have students use a big footstep to approximately equal 1 yard.</li> <li>• Have students use various distances on their body to approximate different lengths (distance between elbow and wrist is approximately 1 foot, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 160-193</li> <li>• Stamps, different sizes of containers (milk, pop, etc.)</li> </ul>	Give students different objects and have them estimate the length using their personal referents.

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students estimate and measure to a required degree of accuracy and precision by selecting and using appropriate units, tools and technologies.  
**Benchmark:** E. Tell time to the nearest minute.  
**Content Organizer:** *Measurement Units*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
3. Tell time to the nearest minute and find elapsed time using a calendar or a clock.	<ul style="list-style-type: none"> <li>• Review telling time to the hour, half-hour, quarter-hour, and to five minutes using individual clocks and the big classroom clock.</li> <li>• Instruct the students on how to tell time to the minute by counting the minutes after the hour and as minutes until the next hour.</li> <li>• Instruct the students to be able to read the time on a clock, draw hands on a clock for a given time, and write the time in digits.</li> <li>• Have the students draw hands on a clock when the time is given in words.</li> <li>• Show the students how to count forward or backward on a clock or a calendar to find time elapsed.</li> <li>• Review how to read and use a calendar.</li> <li>• Challenges 2-10 p. 23 and 2-11 p. 24</li> <li>• Overhead activities 2-6 to 2-11</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 68-83</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Overhead Teaching Activities</li> <li>• Small, individual clocks</li> <li>• Classroom clock</li> <li>• Calendar</li> </ul>	<ul style="list-style-type: none"> <li>• Observe students answering questions during math meeting dealing with clocks and calendars.</li> <li>• Give students pictures of clocks and have them tell the time or label the time.</li> <li>• Give students story problems to solve involving time elapsed using a clock and a calendar.</li> </ul>

**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** 18

## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students estimate and measure to a required degree of accuracy and precision by selecting and using appropriate units, tools and technologies.  
**Benchmark:** A. Select appropriate units for perimeter, area, weight, volume (capacity), time and temperature using: objects of uniform size; U.S. customary units; e.g., mile, square inch, cubic inch, second degree Fahrenheit, and other units as appropriate; metric units; e.g., millimeter, kilometer, square centimeter, kilogram, cubic centimeter, degree Celsius, and other units as appropriate. D. Identify appropriate tools and apply counting techniques for measuring side lengths, perimeter, and area of squares, rectangles, and simple irregular two-dimensional shapes, volume of rectangular prisms, and time and temperature.

**Content Organizer:** *Measurement Units*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
4. Read thermometers in both Fahrenheit and Celsius scales	<ul style="list-style-type: none"> <li>• Review reading the Fahrenheit scale and determine points of reference (boiling point, freezing point, body temperature, room temperature, etc.)</li> <li>• Instruct students on reading the Celsius scale and determine points of reference</li> <li>• Overhead Activities 4-7 and 4-14</li> <li>• Have students use a thermometer to measure the temperature in different areas (inside vs. outside) in <sup>0</sup>F. and <sup>0</sup>C</li> <li>• Challenge 4-14</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 176-177 and 192-193</li> <li>• Houghton Mifflin Overhead Teaching Activities Book</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Thermometers</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students pictures of thermometers and have them read the temperature or shade the given temperature on the thermometer.</li> <li>• Observe the students using a thermometer during the math meeting or a science experiment.</li> </ul>

**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 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students estimate and measure to a required degree of accuracy and precision by selecting and using appropriate units, tools and technologies.

**Benchmark:** C. Develop common referents for units of measure for length, weight, volume (capacity) and time to make comparisons and estimates.

**Content Organizer:** *Use Measurement Techniques and Tools*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>5. Estimate and measure length, weight and volume (capacity), using metric and U.S. customary units, accurate to the nearest <math>\frac{1}{2}</math> or <math>\frac{1}{4}</math> unit as appropriate.</p>	<ul style="list-style-type: none"> <li>• Bring in various objects and containers for the students to estimate weight, length, and volume and then have the students check their estimates using the proper measuring tool. (Ex. pencils, paper clips, liquid laundry detergent bottle, etc. ) Students need to estimate to the nearest <math>\frac{1}{2}</math> or <math>\frac{1}{4}</math> unit.</li> <li>• Challenge 4-1</li> <li>• Overhead Activities 4-1 and 4-4</li> <li>• Estimate the length and width of a room</li> <li>• Estimate the weight of a person</li> <li>• Estimate the distance around the school or playground by walking around it.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 160-175 and 182-191</li> <li>• Various containers and items that students can use to estimate weight, length, and volume.</li> <li>• Houghton Mifflin challenge workbook</li> <li>• Houghton Mifflin Overhead Teaching Activities</li> <li>• Rulers, scales, measuring cup</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students various objects and have them estimate the length weight or volume and then measure the actual length, weight, or volume.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students estimate and measure to a required degree of accuracy and precision by selecting and using appropriate units, tools and technologies.  
**Benchmark: D.** Identify appropriate tools and apply counting techniques for measuring side lengths, perimeter, and area of squares, rectangles, and simple irregular two-dimensional shapes, volume of rectangular prisms, and time and temperature.

**Content Organizer:** *Use Measurement Techniques and Tools*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>6. Use appropriate measurement tools and techniques to construct a figure or approximate an amount of specified length, weight or volume (capacity); e.g., construct a rectangle with length <math>2\frac{1}{2}</math> inches and width 3 inches, fill a measuring cup to the <math>\frac{3}{4}</math> cup mark.</p>	<ul style="list-style-type: none"> <li>• Give the students ruler and specified lengths, the student will be able to construct a geometric shape.</li> <li>• Give the students measuring cup students will be able to fill it to specified amounts using rice or a liquid.</li> <li>• Have students use their knowledge of a measuring cup and a recipe in order to make something to eat or drink.</li> <li>• Have students experiment to find out how much of an item it takes to equal a certain weight. (How many bananas equal 1 pound?)</li> <li>• Challenge 4-2</li> </ul>	<ul style="list-style-type: none"> <li>• Rulers</li> <li>• Measuring cups</li> <li>• Recipe/ingredients</li> <li>• Rice for measuring</li> <li>• Scale/items for weighing</li> <li>• Houghton Mifflin Challenge Workbook</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students a set of measurements and have them construct a figure with those measurements.</li> <li>• Give the students a recipe and have them use the correct measurements to make the food product.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students estimate and measure to a required degree of accuracy and precision by selecting and using appropriate units, tools and technologies.  
**Benchmark: D.** Identify appropriate tools and apply counting techniques for measuring side lengths, perimeter, and area of squares, rectangles, and simple irregular two-dimensional shapes, volume of rectangular prisms, and time and temperature.

**Content Organizer:** *Use Measurement Techniques and Tools*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
7. Make estimates for perimeter, area and volume using links, tiles, cubes and other models.	<ul style="list-style-type: none"> <li>• Review with the students the methods for finding the perimeter, area, and volume of objects using rulers, links, tiles, cubes, geoboards, grid paper, etc.</li> <li>• Using rulers, links, tiles, cubes, grid paper, etc. give the students a shape (for perimeter/area) or a container (for volume) and have them estimate the perimeter, area, or volume.</li> <li>• Overhead Activities 7-8 to 7-10 and 7-13 and 7-14</li> <li>• Challenge 7-10 p. 86</li> <li>• Practice 7-13 p. 89</li> <li>• Reteach 7-13 p. 89</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 318-323 and 332-335</li> <li>• Houghton Mifflin Overhead Activities Book</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Rulers, links, tiles, cubes, grid paper, geoboards, etc.</li> <li>• Containers to find the volume of</li> <li>• Houghton Mifflin Reteach Workbook</li> <li>• Houghton Mifflin Practice Workbook</li> </ul>	<ul style="list-style-type: none"> <li>• Observe the students finding the area or volume of objects using links, tiles, rulers, cubes, grid paper, etc.</li> <li>• Give student shapes on paper and have them compute the area and perimeter.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students identify, classify, compare and analyze characteristics, properties and relationships of one-, two-, and three-dimensional geometric figures and objects. Students use spatial reasoning, properties of geometric objects and transformations to analyze mathematical situations and solve problems.  <b>Benchmark:</b> A. Provide rationale for groupings and comparisons of two-dimensional figures and three-dimensional objects. E. Use attributes to describe, classify and sketch plane figures and build solid objects  <b>Content Organizer:</b> <i>Characteristics and Properties</i></p>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>1. Analyze and describe properties of two-dimensional shapes and three-dimensional objects using terms such as vertex, edge, angle, side and face.</p>	<ul style="list-style-type: none"> <li>• Instruct students on what makes a shape or object two-dimensional or three-dimensional.</li> <li>• Instruct students in determining the vertex, edge, angle, side, and face of an object.</li> <li>• Do Measurement and Geometry Activity on p. 299 of Houghton Mifflin Teacher’s Edition to classify shapes by attributes (angles, sides, etc.)</li> <li>• Do an activity similar to the Measurement and Geometry Activity on pg. 299 but use three-dimensional objects and have the students classify them by attributes.</li> <li>• Play “Meet Your Match” p. 331</li> <li>• Practice 7-12 p. 88</li> <li>• Challenge 7-12 p. 88</li> <li>• Reteach 7-12 p. 88</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin p. 296-315 and pp. 328-331</li> <li>• Houghton Mifflin Teacher’s Edition</li> <li>• Two dimensional and three-dimensional shapes and objects</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> </ul>	<ul style="list-style-type: none"> <li>• Observe students classifying a set of 2-dimensional and 3-dimensional objects and have the students justify their classification.</li> <li>• Give students pictures of 2-dimensional and 3-dimensional objects and have them label the parts: vertex, edge, angle, side, face</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

<b>Content Standard: Students identify, classify, compare and analyze characteristics, properties and relationships of one-, two-, and three-dimensional geometric figures and objects. Students use spatial reasoning, properties of geometric objects and transformations to analyze mathematical situations and solve problems.</b> <b>Benchmark: D. Identify and draw right, obtuse, acute and straight angles.</b> <b>Content Organizer: <i>Characteristics and Properties</i></b>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>2. Identify and describe the relative size of angles with respect to right angles as follows:</p> <p>(a) Use physical models, like straws, to make different sized angles by opening and closing the sides, not by changing the side lengths.</p> <p>(b) Identify, classify and draw right acute, obtuse and straight angles.</p>	<ul style="list-style-type: none"> <li>• Using physical models, such as straws or pipe cleaners, have the students construct the different types of angles (right, acute, obtuse, straight) by opening and closing the sides.</li> <li>• Have the students draw the different types of angles.</li> <li>• Give the students set of different types of angles, have the students identify the types of angles and classify the angles by type.</li> <li>• Have the students find different angles made by objects in the room or in their surroundings.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 298-300</li> <li>• Straws, pipe cleaners</li> <li>• Sets of angles</li> </ul>	<ul style="list-style-type: none"> <li>• Observe the students creating different types of angles (right, acute, obtuse, straight) using pipe cleaners or straws.</li> <li>• Give the students pictures of different types of angles and have them identify and classify them.</li> <li>• Name a type of angle and have them draw an example of that type of angle.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students identify, classify, compare and analyze characteristics, properties and relationships of one-, two-, and three-dimensional geometric figures and objects. Students use spatial reasoning, properties of geometric objects and transformations to analyze mathematical situations and solve problems.

**E. Benchmark:** G. Find and name locations in coordinate systems.

**Content Organizer:** *Spatial Relationships*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
3. Find and name locations on a labeled grid or coordinate system; e.g., a map or graph.	<ul style="list-style-type: none"> <li>• Instruct the students on what a coordinate system is and how to find and name ordered pairs.</li> <li>• Practice finding and reading ordered pairs on a map in social studies.</li> <li>• Have the students draw a picture on a labeled grid using pairs (ex. the fish in Saxon)</li> <li>• Play a “Battleship” game</li> <li>• Challenge 10-6 p. 117</li> <li>• Overhead Activity 10-6</li> <li>• Practice 10-6 p. 117</li> <li>• Reteach 10-6 p. 117</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 452-453</li> <li>• Houghton Mifflin Overhead Teaching Activities Book</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Grid paper</li> <li>• “Battleship” game</li> <li>• Social Studies maps</li> </ul>	<ul style="list-style-type: none"> <li>• Give students labeled points on a grid and have them give the coordinates. Give the students coordinates and have them put the point on a grid</li> <li>• Observe students playing a Battleship- like game</li> <li>• Observe students using coordinates to find places on a map.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

<b>Content Standard:</b> Students identify, classify, compare and analyze characteristics, properties and relationships of one-, two-, and three-dimensional geometric figures and objects. Students use spatial reasoning, properties of geometric objects and transformations to analyze mathematical situations and solve problems. <b>Benchmark:</b> H. Identify and describe line and rotational symmetry in two-dimensional shapes and designs. <b>Content Organizer:</b> <i>Transformations and Symmetry</i>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
4. Draw lines of symmetry to verify symmetrical two-dimensional shapes.	<ul style="list-style-type: none"> <li>• Review the meaning of a line of symmetry</li> <li>• Have students cut out shapes or give them shapes and fold them to find the line(s) of symmetry</li> <li>• Have the students fold a sheet of paper in half, open it, and put paint on one half. Fold it over again and open it to make a picture with a line of symmetry.</li> <li>• Have students draw lines of symmetry through different given shapes or have the students discover a shape does not have a line of symmetry.</li> <li>• Overhead Activity 7-7</li> <li>• Practice Activity 7-7 p. 83</li> <li>• Reteach Activity 7-7 p. 83</li> <li>• Challenge Activity 7-7 p. 83</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 316-317</li> <li>• Construction paper</li> <li>• Scissors</li> <li>• Houghton Mifflin overhead teaching activity book</li> <li>• Houghton Mifflin Practice workbook</li> <li>• Houghton Mifflin Reteach workbook</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Shapes</li> <li>• Paint</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students pictures of shapes and have them draw the line(s) of symmetry.</li> <li>• Give students paper and have them create shapes that have line(s) of symmetry.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

<b>Content Standard:</b> Students identify, classify, compare and analyze characteristics, properties and relationships of one-, two-, and three-dimensional geometric figures and objects. Students use spatial reasoning, properties of geometric objects and transformations to analyze mathematical situations and solve problems. <b>Benchmark:</b> E. Use attributes to describe, classify and sketch plane figures and build solid objects <b>Content Organizer:</b> <i>Visualization and Geometric Models</i>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
5. Build a three-dimensional model of an object composed of cubes; e.g., construct a model based on an illustration or actual object.	<ul style="list-style-type: none"> <li>• Have students build three-dimensional models with cubes based on the illustrations on Challenge 7-13 p. 89, Practice 7-17 p. 90, and Reteach 7-14 p. 90.</li> <li>• Create a three-dimensional model out of cubes and have the students work in groups to recreate the model using cubes.</li> <li>• Overhead activity 7-14</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 332-335</li> <li>• Houghton Mifflin Overhead Teaching Activity Book</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> <li>• Cubes</li> </ul>	<ul style="list-style-type: none"> <li>• Observe students using cubes to build a three-dimensional model of an object based on an illustration or actual object.</li> </ul>

**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 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students use patterns, relations and functions to model, represent and analyze problem situations that involve variable quantities. Students analyze, model and solve problems using various representations such as tables, graphs and equations.</p> <p><b>Benchmark:</b> A. Analyze and extend patterns, and describe the rule in words.</p> <p><b>Content Organizer:</b> <i>Use Patterns, Relations, and Functions</i></p>			
<i>Grade Level Indicator</i>	Instructional Activities/Strategies	<i>Resources</i>	<i>Assessment</i>
<p>1. Extend multiplicative and growing patterns, and describe the pattern or rule in words.</p>	<ul style="list-style-type: none"> <li>• Given a rule the students will be able to finish/extend a multiplicative pattern.</li> <li>• Given a pattern the student will be able to extend a multiplicative pattern and tell the rule in words.</li> <li>• Challenge 12-1 p. 141</li> <li>• Practice 6-1 p. 67</li> <li>• Reteach 6-1 p. 67</li> <li>• Challenge 6-1 p. 67</li> <li>• Overhead Activities 6-1 and 12-1</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 222, 256-257, 270, 274-276, 544-545</li> <li>• Houghton Mifflin Overhead Teaching Activities</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students multiplicative patterns and have them extend them and explain the rule.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students use patterns, relations and functions to model, represent and analyze problem situations that involve variable quantities. Students analyze, model and solve problems using various representations such as tables, graphs and equations.</p> <p><b>Benchmark:</b> A. Analyze and extend patterns, and describe the rule in words.</p> <p><b>Content Organizer:</b> <i>Use Patterns, Relations, and Functions</i></p>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>2. Analyze and replicate arithmetic sequences with and without a calculator.</p>	<ul style="list-style-type: none"> <li>• Given an arithmetic sequence the students will be able to extend the pattern, write the rule, and explain the pattern with and without a calculator.</li> <li>• Given a rule, have the students create or extend an arithmetic sequence and explain the pattern with and without a calculator.</li> <li>• Practice 1-10 p. 10</li> <li>• Reteach 1-10 p. 10</li> <li>• Challenge 1-10 p. 10</li> <li>• Overhead Activity 1-10</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin p. 10, 28-29, 43, 57</li> <li>• Houghton Mifflin Overhead Teaching Activity Book</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Calculators</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students arithmetic sequences and have them extend them and explain the sequence.</li> <li>• Give the students a rule and have the students create/extend an arithmetic sequence.</li> </ul>

**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** 29

## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students use patterns, relations and functions to model, represent and analyze problem situations that involve variable quantities. Students analyze, model and solve problems using various representations such as tables, graphs and equations.</p> <p><b>Benchmark: B.</b> Use patterns to make predictions, identify relationships, and solve problems.</p> <p><b>Content Organizer:</b> <i>Use Patterns, Relations, and Functions</i></p>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>3. Use patterns to make predictions, identify relationships, and solve problems.</p>	<ul style="list-style-type: none"> <li>• Given a real-life situation dealing with patterns such as designs on a wall, furniture, clothing, jewelry, decorations, quilt, etc. have the students make predictions and identify relationships in order to continue the pattern and how to solve the pattern if part of the pattern is missing.</li> <li>• Have the students work with predicting and solving patterns using several different attributes, such as color, size, shape (2 and 3 dimensional), texture, etc.</li> <li>• Practice 7-5 p. 81</li> <li>• Reteach 7-5 p. 81</li> <li>• Practice 7-11 p. 87</li> <li>• Reteach 7-11 p. 87</li> <li>• Challenge 7-1 p. 87</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 28-29, 43, 69, 103, 273, 308-309, 324-325, 335, 343, 373, 487</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Items that contain patterns.</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students story problems that involve creating a pattern to solve them.</li> <li>• Give students patterns on clothing, furniture, jewelry, quilt, etc. and have the students solve the patterns if part of the pattern is missing.</li> </ul>

**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** 30

## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students use patterns, relations and functions to model, represent and analyze problem situations that involve variable quantities. Students analyze, model and solve problems using various representations such as tables, graphs and equations.</p> <p><b>Benchmark:</b> E. Use variables to create and solve equations representing problem situations.</p> <p><b>Content Organizer:</b> <i>Use Algebraic Representations</i></p>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>4. Model problem situations using objects, pictures, tables, numbers, letters and other symbols.</p>	<ul style="list-style-type: none"> <li>• Given problem situations have the students use objects, draw a picture, make a table, use numbers letters, other symbols, or act out the situation to solve the problem.</li> <li>• Practice 5-9 p. 64</li> <li>• Reteach 5-9 p. 64</li> <li>• Challenge 5-9 p. 64</li> <li>• Practice 8-8 p. 99</li> <li>• Reteach 8-8 p. 99</li> <li>• Challenge 8-8 p. 99</li> <li>• Practice 9-7 p. 108</li> <li>• Reteach 9-7 p. 108</li> <li>• Challenge 9-7 p. 108</li> <li>• Practice 10-7 p. 118</li> <li>• Reteach 10-7 p. 118</li> <li>• Challenge 10-7 p. 118</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 234-235, 372-373, 412-413, 454-455</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Manipulatives</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students story problems that can be solved using objects, pictures, tables, numbers or letters and observe how the students solve the problems.</li> </ul>

## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students use patterns, relations and functions to model, represent and analyze problem situations that involve variable quantities. Students analyze, model and solve problems using various representations such as tables, graphs and equations.  
**Benchmark:** C. Write and solve open sentences and explain strategies.  
**Content Organizer:** *Use Algebraic Representations*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
5. Write, solve, and explain simple mathematical statements, such as $7 + \square > 8$ or $\triangle + 8 = 10$ .	<ul style="list-style-type: none"> <li>• Using problem solving strategies have the students write, solve, and explain mathematical statements and equations in order to find a missing variable.</li> <li>• Challenge 5-2 p. 57</li> <li>• Challenge 5-4 p. 59</li> <li>• Challenge 5-7 p. 62</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 69, 103, 216, 221, 229, 363, 401</li> <li>• Houghton Mifflin Challenge Workbook</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students story problems and have them write a number sentence to solve them.</li> <li>• Give the students mathematical statements to solve for a variable.</li> </ul>

**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 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students use patterns, relations and functions to model, represent and analyze problem situations that involve variable quantities. Students analyze, model and solve problems using various representations such as tables, graphs and equations.</p> <p><b>Benchmark:</b> C. Write and solve open sentences and explain strategies.</p> <p><b>Content Organizer:</b> <i>Use Algebraic Representations</i></p>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>6. Express mathematical relationships as equations and inequalities.</p>	<ul style="list-style-type: none"> <li>• Review <math>&lt;</math>, <math>&gt;</math>, <math>=</math> symbols and meaning of greater than, less than, and equal to.</li> <li>• Use a number line to compare numbers</li> <li>• Overhead Activity 1-7</li> <li>• Practice 1-7 p. 7</li> <li>• Reteach 1-7 p. 7</li> <li>• Challenge 1-7 p. 7</li> <li>• Give students equations and inequalities to solve and compare.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 20-21, 121, 237</li> <li>• Houghton Mifflin Overhead Teaching Activities</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> <li>• Houghton Mifflin Challenge Workbook</li> </ul>	<ul style="list-style-type: none"> <li>• Give students equations and inequalities to solve and compare.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students use patterns, relations and functions to model, represent and analyze problem situations that involve variable quantities. Students analyze, model and solve problems using various representations such as tables, graphs and equations.</p> <p><b>Benchmark:</b> F. Construct and use a table of values to solve problems associated with mathematical relationships.</p> <p><b>Content Organizer:</b> <i>Analyze Change</i></p>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>7. Create tables to record, organize and analyze data to discover patterns and rules.</p>	<ul style="list-style-type: none"> <li>• Give students practice story problems to solve like the example on Houghton Mifflin text p. 454 using a table and finding a pattern to solve.</li> <li>• Practice 10-7 p. 118</li> <li>• Reteach 10-7 p. 118</li> <li>• Challenge 10-7 p. 118</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 454-455</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> <li>• Houghton Mifflin Challenge Workbook</li> </ul>	<ul style="list-style-type: none"> <li>• Give students story problems to solve by creating a table and finding a pattern. Have them analyze their findings.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students use patterns, relations and functions to model, represent and analyze problem situations that involve variable quantities. Students analyze, model and solve problems using various representations such as tables, graphs and equations.

**Benchmark:** G. Describe how a change in one variable affects the value of a related variable.

**Content Organizer:** *Analyze Change*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
8. Identify and describe quantitative changes, especially those involving addition and subtraction; e.g., the height of water in a glass becoming 1 centimeter lower each week due to evaporation.	<ul style="list-style-type: none"> <li>• Discuss the graphs and charts in Houghton Mifflin text so the students have a means to collect data.</li> <li>• Have the students observe the height of water in a glass becoming lower due to evaporation.</li> <li>• Have students grow plants and measure the growth over time.</li> <li>• Have students observe the seasons (amount of daylight) and collect and analyze data.</li> <li>• Have students explain their findings in written form.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin text pp. 438-444, 448-451</li> </ul>	<ul style="list-style-type: none"> <li>• Observe students conducting the activities and have them explain their findings.</li> </ul>

**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 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students pose questions and collect, organize, represent, interpret and analyze data to answer those questions. Students develop and evaluate inferences, predictions and arguments that are based on data.

**Benchmark:** A. Gather and organize data from surveys and classroom experiments, including data collected over a period of time.

**Content Organizer:** *Data Collection*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
1. Collect and organize data from an experiment, such as recording and classifying observations or measurements in response to a question posed.	<ul style="list-style-type: none"> <li>• Discuss the different types of graphs/charts the students can use to collect and organize data (Houghton Mifflin text)</li> <li>• Have the students do an experiment in which they collect data, organize data, and then can analyze the observations.</li> <li>• Example experiments: -Collect data on students' favorite food, color, etc. -Observe growth of plants -Take a walk and observe plants, bugs, etc. -Height of students -Lunch choices</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 438-439, 442-443, 445, 446-450, 454-455</li> </ul>	<ul style="list-style-type: none"> <li>• Observe the students doing an experiment, have them collect, organize and analyze their observations.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students pose questions and collect, organize, represent, interpret and analyze data to answer those questions. Students develop and evaluate inferences, predictions and arguments that are based on data.</p> <p><b>Benchmark: D.</b> Read, interpret and construct graphs in which icons represent more than a single unit or intervals greater than one; e.g., each <math>\otimes</math> = 10 bicycles or the intervals on an axis are multiples of 10.</p> <p><b>Content Organizer:</b> <i>Data Collection</i></p>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>2. Draw and interpret picture graphs in which a symbol or picture represents more than one object.</p>	<ul style="list-style-type: none"> <li>• Instruct students in how to read and create a picture graph (Houghton Mifflin text p. 442-445)</li> <li>• Overhead Activity 10-3</li> <li>• Give the students a set of data and have students create a picture graph (ex. number of student sin each 3<sup>rd</sup> grade class)</li> <li>• Practice 10-3 p. 114</li> <li>• Reteach 10-3 p. 114</li> <li>• Challenge 10-3 p. 114</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 223, 238-239, 279, 358, 442-445, 550</li> <li>• Houghton Mifflin Overhead Teaching Activity</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> <li>• Houghton Mifflin Challenge Workbook</li> </ul>	<ul style="list-style-type: none"> <li>• Give students a set of data and have the students create a picture graph.</li> <li>• Give the students a picture graph and have them answer questions about it.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students pose questions and collect, organize, represent, interpret and analyze data to answer those questions. Students develop and evaluate inferences, predictions and arguments that are based on data.  
**Benchmark:** D. Read, interpret and construct graphs in which icons represent more than a single unit or intervals greater than one; e.g., each  $\otimes$  = 10 bicycles or the intervals on an axis are multiples of 10.  
**Content Organizer:** *Data Collection*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
3. Read, interpret and construct bar graphs with intervals greater than one.	<ul style="list-style-type: none"> <li>• Instruct students on how to read, interpret, and construct bar graphs (Houghton Mifflin text p. 446-451)</li> <li>• Give the students a set of data and have them construct a bar graph (ex. students' favorite colors)</li> <li>• Give the students a bar graph and have them interpret the data by asking them questions about the graph.</li> <li>• Houghton Mifflin Practice 1-13 p. 13, 10-4 p. 115, 10-5 p. 116</li> <li>• Houghton Mifflin Reteach 1-13 p. 13, 10-4 p. 115, 10-5 p. 116</li> <li>• Houghton Mifflin Challenge 1-13 p. 13, 10-4 p. 115, 10-5 p. 116</li> <li>• Overhead Activity 10-5</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 36-37, 118, 330, 375, 446-451, 515, 575</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Houghton Mifflin Overhead Teaching Activity</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students a bar graph and have them interpret the data by asking them questions about the graph.</li> <li>• Give the students data and have them create a bar graph with the information.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students pose questions and collect, organize, represent, interpret and analyze data to answer those questions. Students develop and evaluate inferences, predictions and arguments that are based on data.</p> <p><b>Benchmark:</b> B. Read and interpret tables, charts, graphs (bar, picture, line, line plot), and timelines as sources of information, identify main idea, draw conclusions, and make predictions.</p> <p><b>Content Organizer:</b> <i>Data Collection</i></p>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>4. Support a conclusion or prediction orally and in writing, using information in a table or graph.</p>	<ul style="list-style-type: none"> <li>• Give the students a table or a graph of information and have them discuss their findings/observations in written form and orally</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 440, 443, 450</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students a table or graph of information and have them discuss a conclusion or a prediction based on the information in written form and orally.</li> </ul>

**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** 39

## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students pose questions and collect, organize, represent, interpret and analyze data to answer those questions. Students develop and evaluate inferences, predictions and arguments that are based on data.

**Benchmark:** B. Read and interpret tables, charts, graphs (bar, picture, line, line plot), and timelines as sources of information, identify main idea, draw conclusions, and make predictions.

**Content Organizer:** *Data Collection*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
5. Match a set of data with a graphical representation of the data.	<ul style="list-style-type: none"> <li>• Give students several graphs and sets of corresponding data and have the students match the graph and the data.</li> <li>• Give the students data and have them transfer it to a graph and give students a graph and have them analyze the graph and write it as data.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 438-450</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students several graphs and sets of corresponding data and have the students match the graph and the data.</li> </ul>

**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 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students pose questions and collect, organize, represent, interpret and analyze data to answer those questions. Students develop and evaluate inferences, predictions and arguments that are based on data.</p> <p><b>Benchmark:</b> C. Construct charts, tables and graphs to represent data, including picture graphs, bar graphs, line graphs, line plots and simple Venn diagrams.</p> <p><b>Content Organizer:</b> <i>Data Collection</i></p>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>6. Translate information freely among charts, tables, line plots, picture graphs and bar graphs; e.g., create a bar graph from the information in a chart.</p>	<ul style="list-style-type: none"> <li>• Instruct the students on how to read and create the different types of graphs and charts.</li> <li>• Give the students information in the form of a chart, table, or graph and have the students transfer the information to a different type of chart, table, or graph.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 438-451</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students information in the form of a chart, table, or graph and have the students transfer the information to a different type of chart, table, or graph.</li> </ul>

**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** 41

## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students pose questions and collect, organize, represent, interpret and analyze data to answer those questions. Students develop and evaluate inferences, predictions and arguments that are based on data.

**Benchmark:** B. Read and interpret tables, charts, graphs (bar, picture, line, line plot), and timelines as sources of information, identify main idea, draw conclusions, and make predictions.

**Content Organizer:** *Data Collection*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
7. Analyze and interpret information represented on a timeline.	<ul style="list-style-type: none"> <li>• Instruct students on what a time line is and how it is used.</li> <li>• Give students a time line and have them answer questions (interpret the information) about it.</li> <li>• Have students use time lines from social studies or create their own time line of their life or the schedule of their day.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin p. 73</li> <li>• Social Studies time lines</li> </ul>	<ul style="list-style-type: none"> <li>• Give students a timeline and ask them questions about it.</li> </ul>

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## Mathematics – Grade 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students pose questions and collect, organize, represent, interpret and analyze data to answer those questions. Students develop and evaluate inferences, predictions and arguments that are based on data.  <b>Benchmark:</b> E. Describe data using mode, median and range.  <b>Content Organizer:</b> <i>Statistical Methods</i></p>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>8. Identify the mode of a data set and describe the information it gives about a data set.</p>	<ul style="list-style-type: none"> <li>• Instruct students on the meaning of the mode of a set of data and how to find the mode.</li> <li>• Give the students a set of data and have them find the mode and explain what the mode tells about the set of data.</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 440-441</li> </ul>	<ul style="list-style-type: none"> <li>• Give the students a set of data and have them find the mode and explain what the mode tells about the set of data.</li> </ul>

**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 3

Adams County/Ohio Valley  
Course of Study

**Content Standard:** Students pose questions and collect, organize, represent, interpret and analyze data to answer those questions. Students develop and evaluate inferences, predictions and arguments that are based on data.

**Benchmark:** F. Conduct a simple probability experiment and draw conclusions about the likelihood of possible outcomes.

**Content Organizer:** *Probability*

<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>9. Conduct a simple experiment or simulation of a simple event, record the results in a chart, table or graph, and use the results to draw conclusions about the likelihood of possible outcomes.</p>	<ul style="list-style-type: none"> <li>• Instruct the students on the meaning and uses of probability (Houghton Mifflin p. 458-463)</li> <li>• Have the student do simple experiments to find probabilities, have them record the results in a chart, table, or graph and analyze the data (possible outcomes)</li> <li>• Sample experiments                             <ul style="list-style-type: none"> <li>-spinner with different amounts of different colors</li> <li>-heads/tails of a coin</li> <li>-numbers on a dice/number cube</li> <li>-pulling out of a bag different colored cubes</li> </ul> </li> <li>• Practice 10-8 p. 119, 10-9 p. 120, 10-10 p. 121, 10-11 p. 122</li> <li>• Reteach 10-8 p. 119, 10-9 p. 120, 10-10 p. 121, 10-11 p. 121</li> <li>• Challenge 10-8 p. 119, 10-9 p. 120, 10-10 p. 121, 10-11 p. 121</li> <li>• Overhead Activity 10-8, 10-9, 10-10</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin pp. 458-467</li> <li>• Houghton Mifflin Overhead Teaching Activity</li> <li>• Houghton Mifflin Practice Workbook</li> <li>• Houghton Mifflin Reteach Workbook</li> <li>• Houghton Mifflin Challenge Workbook</li> <li>• Spinners</li> <li>• Colored tiles</li> <li>• Coins</li> <li>• Dice/number cube</li> <li>• Colored counters/cubes/marbles</li> </ul>	<ul style="list-style-type: none"> <li>• Observe the students doing a simple probability experiment. Have the students collect the data and then explain the results/conclusions</li> </ul>

**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 3

Adams County/Ohio Valley  
Course of Study

<p><b>Content Standard:</b> Students pose questions and collect, organize, represent, interpret and analyze data to answer those questions. Students develop and evaluate inferences, predictions and arguments that are based on data.</p> <p><b>Benchmark:</b> G. Identify and represent possible outcomes, such as arrangements of a set of up to four members and possible combinations from several sets, each containing 2 or 3 members.</p> <p><b>Content Organizer:</b> <i>Probability</i></p>			
<i>Grade Level Indicator</i>	<i>Instructional Activities/Strategies</i>	<i>Resources</i>	<i>Assessment</i>
<p>10. Use physical models, pictures, diagrams and lists to solve problems involving possible arrangements or combinations of two to four objects.</p>	<ul style="list-style-type: none"> <li>• Show the students how to solve problems involving possible combinations using a tree diagram (Ex. Houghton Mifflin p. 251)</li> <li>• Bring in different types of bread and sandwich items and have students make the different possible sandwich combinations (Also can be done with clothing or other various items.)</li> </ul>	<ul style="list-style-type: none"> <li>• Houghton Mifflin p. 251</li> <li>• Bread/sandwich items</li> <li>• Different types of clothing</li> </ul>	<ul style="list-style-type: none"> <li>• Give students a list of different types of items and have them determine how many different combinations can be made.</li> <li>• Observe students using a set of various items and determining the different combinations that can be made.</li> </ul>

**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**