

## 5<sup>th</sup> Grade Math Curriculum Bundle # 9

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| <b>Title</b> | <b>Suggested Dates</b>           |
| Measurement  | February 22 – March 12 (15 days) |



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| <b>Big Idea/Enduring Understanding</b>  | <b>Guiding Questions</b>   |
| Measurement systems use units to describe attributes of length, perimeter, area, capacity and mass. | <p>How is tiling used to find accurate measurements?</p> <p>What is the starting point when measuring?</p> <p>How can you convert units of measurement within the same system?</p> |

The resources included here provide teaching examples and/or meaningful learning experiences to address the District Curriculum. In order to address the TEKS to the proper depth and complexity, teachers are encouraged to use resources to the degree that they are congruent with the TEKS and research-based best practices. Teaching using only the suggested resources does not guarantee student mastery of all standards. Teachers must use professional judgment to select among these and/or other resources to teach the district curriculum.

| Knowledge & Skills with Student Expectations  | District Specificity/Examples  | Suggested Resources<br>(See note above)   |  |
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| <p><b>5.10 The student applies measurement concepts involving length, (including perimeter), area, capacity/volume, and weight/mass to solve problems</b></p> <p>5.10A Perform simple conversions within the same measurement system SI (metric) or customary</p> | <p>Including but not limited to</p> <ul style="list-style-type: none"> <li>• estimate solution prior to conversions</li> <li>• introduce the idea of conversions with hands-on application</li> <li>• understand the difference between capacity (amount object holds) and weight (gravitational pull on an object)</li> <li>• understand relationships of customary and metric units of weight, length, and capacity using multiplication or division</li> <li>• perform simple conversions between different units of length in problem solving such as:                             <ul style="list-style-type: none"> <li>○ What fractional part of a foot is 6 inches?</li> <li>○ What fractional part of a liter is 250 milliliters?</li> <li>○ How many Inches are in four feet?</li> <li>○ perform simple conversions between</li> </ul> </li> </ul> | <p><b>Teachers will use Math Investigations as the main instructional resource.</b> District resources are listed and categorized to indicate suggested uses. Any additional resources must be aligned with the TEKS.</p> <p><a href="#">PISD TAKS Timeline</a></p> | <p><b><u>Whole Group Lessons</u></b></p> <p><a href="#">Envision</a><br/>Topic 17<br/>Lessons 1 – 6</p> <p><b><u>Small Group Lessons/Centers</u></b></p> <p><a href="#">Integrated Math/Science Lessons District web page - Measurement Olympics</a></p> <p><a href="#">Kamico</a><br/>Do You Measure Up?<br/>pages 118 – 137<br/>“Good Things Come in Three’s” pages 86 – 99<br/>“Measurement Maze” pages 100 – 114</p> |

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|  | <ul style="list-style-type: none"> <li>○ different units of capacity in problems solving such as:             <ul style="list-style-type: none"> <li>○ What fractional part of a pint is 1 cup?</li> <li>○ How many pints are in one gallon?</li> </ul> </li> <li>● perform simple conversions between different units of weights in problem solving such as:             <ul style="list-style-type: none"> <li>○ 10 tons would be how many pounds?</li> <li>○ What fractional part of a pound is eight ounces?</li> </ul> </li> </ul>   |  | <p>Be a Cracker Jack Converter page 205</p> <p><u>Additional Resources on District Web page –</u><br/>           Gallon Game<br/>           I Have Who Has? Customary Measurement of Length, Capacity and Volume<br/>           Metric Olympics Power Point Game</p> <p><u>A.I.R.R</u><br/>           Exploring Volume #124<br/>           Measuring Volume #125</p> |
| <p><b>5.10 The student applies measurement concepts involving length, (including perimeter), area, capacity/volume, and weight/mass to solve problems</b></p> <p>5.10B Connect models for perimeter, area, and volume with their respective formulas</p> | <p>Including but not limited to</p> <ul style="list-style-type: none"> <li>● explore measuring with different tools and real life objects to develop or reinforce definitions of perimeter, area and volume</li> <li>● differentiate between concepts in real world problems such as             <ul style="list-style-type: none"> <li>○ amount of fence to enclose the garden (perimeter)</li> <li>○ the amount of glass in the window (area)</li> <li>○ the amount of water to fill the pool (volume)</li> </ul> </li> <li>● differentiate labeling of concepts (s - side, l - length, w width, h- height, b - base)             <ul style="list-style-type: none"> <li>○ perimeter (length): linear measure in units</li> <li>○ area: square units</li> <li>○ volume: cubic units</li> </ul> </li> <li>● explain connection of measurements to formulas (concepts must be developed prior to using formulas)</li> </ul> | <p><b><u>Math Investigations</u></b></p> <p><b><u>Measuring Polygons</u></b><br/> <b>Unit 5</b></p> <p>Investigation 2<br/>           Sessions 1 – 6<br/>           pages 70 – 104</p> | <p><b><u>Small Group Lessons/Centers</u></b></p> <p><u>Kamico</u><br/>           Going By the Box page 227</p> <p><u>A.I.R.R</u><br/>           (Addendum book)<br/>           Perimeter Squares, # 23<br/>           Perimeter Rectangles, # 24<br/>           Area of Squares, # 25<br/>           Area of Rectangles, # 26</p>                                    |
| <p><b>5.10 The student applies measurement concepts involving length, (including perimeter), area, capacity/volume, and weight/mass to solve problems</b></p>  | <p>Including but not limited to</p> <ul style="list-style-type: none"> <li>● explore measuring with different tools and real life objects to develop or reinforce definitions of perimeter, area and volume</li> </ul>  |  | <p><b><u>Small Group Lessons/Centers</u></b></p> <p><u>Fifth Sense</u><br/>           Objective 4,<br/>           Lesson 5.10 A</p>  |

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| <p>5.10C Select and use appropriate units and formulas to measure length, perimeter, area, and volume.</p>   | <ul style="list-style-type: none"> <li>• differentiate between concepts in real world problems such as             <ul style="list-style-type: none"> <li>○ amount of fence to enclose the garden (perimeter)</li> <li>○ the amount of glass in the window (area)</li> <li>○ the amount of water to fill the pool (volume)</li> </ul> </li> <li>• differentiate labeling of concepts             <ul style="list-style-type: none"> <li>○ perimeter (length): units</li> <li>○ area: square units</li> <li>○ volume: cubic units</li> </ul> </li> <li>• explain connection of measurements to formulas (concepts must be developed prior to using formulas)</li> <li>• use inverse operations to solve for missing dimension when given area or perimeter and one dimension (<math>60 \text{ units cubed} = 3 \times 5 \times H</math>)</li> <li>• recognize abbreviations for measurements</li> <li>• compare and contrast formulas describing how they are the same but yet different and notes the dimension variables (s - side, l - length, w - width, h - height, b - base)</li> <li>• connect variables and formulas to mathematical terms and actual dimensions</li> <li>• calculate area of rectangles, squares, parallelograms, and triangles</li> </ul> | <p><b><u>Math Investigations</u></b></p> <p><b><u>Prisms and Pyramids</u></b><br/><b>Unit 2</b></p> <p>Investigation 1<br/>Sessions 1 – 5<br/>pages 24 – 53</p> <p><b><u>Prisms and Pyramids</u></b><br/><b>Unit 2</b></p> <p>Investigation 2<br/>Sessions 1 – 4<br/>pages 64 – 86</p> <p><b><u>Prisms and Pyramids</u></b><br/><b>Unit 2</b></p> <p>Investigations 3<br/>Sessions 1 – 5<br/>pages 90 – 111</p> | <p><u>Kamico</u><br/>Measurement Mambo page 234</p>  |
| <p><b>5.11 The student applies measurement concepts. The student measures time and temperature (in degrees Fahrenheit and Celsius).</b></p> <p>5.11A Solve problems involving changes in temperature</p> <p>Note: Negative integers are not a Math TEKS but in temperature a negative will be used in Science.</p> | <p>Including but not limited to</p> <ul style="list-style-type: none"> <li>• recognize the operation(s) needed to solve involving temperature</li> <li>• justify answer by solving the problem using a different strategy or estimation of solution and checking for reasonableness</li> <li>• conduct hands-on experiments measuring various temperatures</li> <li>• describe temperatures using the appropriate label of Fahrenheit and Celsius</li> </ul>   |   | <p><b><u>Whole Group Lessons</u></b></p> <p><u>Envision</u><br/>Topic 18<br/>Lesson 3</p> <p><b><u>Small Group Lessons/Centers</u></b></p> <p><u>A.I.R.R</u><br/>Activities #126-158 cover<br/>Rulers<br/>Perimeter/Area</p> |

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|   | <ul style="list-style-type: none"> <li>• degrees</li> <li>• associate thermometers with a number line and understand that the increments may vary on different thermometers (can vary by increments of 1, 2, 5, 10 etc)</li> <li>• read different thermometer measurements and describe the relationship between two temperatures (the temperature decreased by, increased by, dropped by, or rose by)</li> </ul>   |  | Weight/Mass/Capacity<br>Length<br>Time/Temperature   |
| <p><b>5.11 The student applies measurement concepts. The student measures time and temperature (in degrees Fahrenheit and Celsius).</b></p> <p>5.11B Solve problems involving elapsed time</p>  | Including but not limited to <ul style="list-style-type: none"> <li>• recognize that time is not a base 10 system</li> <li>• explore elapsed time using clock or stopwatch to reinforce concept of time</li> <li>• (hour and minutes)</li> <li>• determine the elapsed time between two given clocks</li> <li>• determine the start time given the ending time and the activity time</li> <li>• explain the solution process of finding an unknown elapsed time involving</li> <li>• hours and minutes using a variety of strategies               <ul style="list-style-type: none"> <li>○ Ex. Elapsed Time Graphic Organizer and/or Linear Timeline / Line of Time</li> </ul> </li> <li>• move from concrete (clock) to pictorial (drawing of clocks, linear clocks, and explain of process) to abstract (calculating of elapsed time)</li> </ul> |  | <p><b><u>Whole Group Lessons</u></b></p> <p><u>Envision</u><br/>           Topic 18<br/>           Lessons 1 – 2</p> <p><b><u>Small Group Lessons/Centers</u></b></p> <p><u>Kamico</u><br/>           All in Good Time page 271</p> <p><u>A.I.R.R</u><br/>           Fractional Measurement #160<br/>           Just a Fraction of Time #161<br/>           Match the Relationship #162<br/>           How do you Convert The Unit? #163</p> |
| <p><b>5.14 Underlying processes and mathematical tools. The student applies Grade 5 mathematics to solve problems connected to everyday experiences and activities in and outside of school.</b></p> <p>5.14B Solve problems that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.</p> <p>Teacher Note: Justify answer by solving the problem using a different strategy or estimation of solution and checking for reasonableness</p> | Including but not limited to <ul style="list-style-type: none"> <li>• explain that some problems can be solved by first finding and solving a sub problem then using that answer to solve the original problem.</li> <li>• Find hidden questions to solve multi-problems.</li> </ul>  |  | <p><b><u>Whole Group Lessons</u></b></p> <p><u>Envision</u><br/>           Topic 17<br/>           Lesson 7</p>  |

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| <p><b>5.14 Underlying processes and mathematical tools. The student applies Grade 5 mathematics to solve problems connected to everyday experiences and activities in and outside of school.</b></p> <p>5.14C Select or develop an appropriate problem-solving plan or strategy, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.</p> <p>Teacher Note: Use inverse operations to solve for missing dimension</p> | <p>Including but not limited to</p> <ul style="list-style-type: none"><li>• Problem solving strategy to make a table when solving various problems</li></ul> |  | <p><b><u>Whole Group Lessons</u></b></p> <p><u>Envision</u><br/>Topic 18<br/>Lesson 4</p> |
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