

## UNIT OF STUDY

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| <b>Title:</b> Unit 9  |  | <b>Subject/Course:</b> Math  | <b>Length:</b> 3 weeks         |
| <b>Topic:</b> Measurement   |  | <b>Grade:</b> 5  | <b>Designer:</b> O'Cain, Smith |
| <b>UNIT GOALS AND EXPECTATIONS</b>  |  |  |                                |
| <b>IMPORTANT CONCEPTS:</b> <ul style="list-style-type: none"> <li>The precision of a measurement is related to the unit of measure. Smaller units yield more precise measurements.</li> <li>Division is used to change smaller units to larger units, and multiplication is used to change larger units to smaller units.</li> <li>The same rules for changing linear units are used to change units of capacity and weight.</li> <li>Elapsed time may be calculated from a clock or a calendar using subtraction.</li> <li>Temperature is measured on a scale that is calibrated in degrees.</li> <li>Perimeter is a linear measure that uses units of length to measure the distance around a figure.</li> <li>The circumference of a circle is a little more than three times the length of the diameter.</li> <li>Use the same measurements for finding the area of a rectangle or a square as for finding its perimeter.</li> <li>The surface area of any polyhedron is found by adding the sum of the area of all its faces.</li> <li>Volume is measured in cubic units.</li> </ul> |  | <b>ESSENTIAL QUESTIONS:</b> <ul style="list-style-type: none"> <li>How do you use weight and measurement in your life?</li> <li>How are the units of measure within a standard system related?</li> <li>How do you decide which tool and unit of measurement to use?</li> <li>When is an estimate more appropriate than an actual measurement?</li> <li>What types of problems are solved with measurement?</li> <li>What are the tools of measurement and how are they used?</li> </ul>   |                                |
| <b>STUDENT LEARNING EXPECTATIONS:</b><br><b>M.12.5.2</b><br>Make conversions within the customary measurement system in real world problems Ex. hours to minutes, feet to inches, quarts to gallons, etc<br><b>M.12.5.3</b><br>Establish through experience benchmark prefixes of milli-, centi-, and kilo-<br><b>M.12.5.4</b><br>Understand when to use linear units to describe <i>perimeter</i> , square units to describe <i>area</i> or <i>surface area</i> , and cubic units to describe <i>volume</i> , in real world situations   |  | <b>M.12.5.5</b><br>Model the differences between covering the <i>faces</i> ( <i>surface area/nets</i> ) and filling the <i>interior</i> ( <i>volume of cubes</i> )<br><br><b>M.13.5.1</b><br>Solve real world problems involving one <i>elapsed time</i> , counting forward (calendar and clock)<br><b>M.13.5.2</b><br>Determine which unit of measure or measurement tool matches the context for a problem situation<br><b>M.13.5.3</b><br>Draw and measure distance to the nearest cm and $\frac{1}{4}$ inch accurately   |                                |
| <b>SPECIFIC DECLARATIVE KNOWLEDGE – What I know</b><br>Explain Vocabulary terms:<br>conversion<br>convert<br>customary<br>benchmark prefixes:<br>milli-,<br>centi-,<br>kilo-<br>metric system   |  | <b>SPECIFIC PROCEDURAL KNOWLEDGE – What I need to do</b><br>*identify the necessary unit of measurement to solve problems<br>*select correct operation for computation<br>*utilize labels for conversions<br>*convert between customary units of measurement<br>*utilize models (balance scale, measuring cups, fillable solids etc...) to investigate milli-, centi-, and kilo-      *recognize the value of milli-, centi-, and kilo<br>*use manipulatives to clarify linear units, square units, and cubic units<br>*identify the measurement/unit that is needed for a given situation |                                |

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| linear unit<br>perimeter<br>square unit<br>area<br>surface area<br>cubic unit<br>volume<br>faces<br>interior<br>net<br>elapsed time | *use manipulatives to model surface area by covering an object<br>*use manipulatives to model volume by decifilling an object<br>*read consecutive months on a calendar<br>*demonstrate that passing 12 o'clock changes time from am to pm or pm to am<br>*solve real-world problems involving one elapsed time, counting forward (calendar and clock)<br>*identify the necessary unit and then measurement tool to solve problems<br>*distinguish between metric and customary measurements on a ruler<br>*identify the benchmark fractions on a ruler<br>*identify where measurement begins on a ruler |
| <b>UNIT ASSESSMENTS</b><br>(Include tasks related to Dimensions 3 and 4 and Bloom's Taxonomy)                                       |  |
| Use "Puppy Problems" involving computing perimeter.<br>HOTS question<br>"Wrist Circumference" involving finding circumference.      |  |
| <b>Traditional Assessments:</b><br>Teacher made quiz on measurement.<br>Teacher made test on measurement.                           | <b>Other Evidence of Learning:</b><br>Classwork activity<br>Weekly homework.   |

| ACTIVITIES AND LEARNING EXPERIENCES  | Resources   |
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| 1. Use <u>Spaghetti and Meatballs for All!</u> as an introduction to Measurement.  | Marilyn Burns   |
| 2. Introduce the units of measure in the Customary system using the student text book.   | Harcourt Ch. 24 Lesson 1  |
| 3. Introduce the units of measure in the Metric system using the student text book.  | Harcourt Ch. 24 Lesson 2  |
| 4. Practice measurement of classroom items using the "How Do You Measure Up?" activity.  | Classroom items<br>Measurement tools  |
| 5. Reinforce the Customary and Metric units using a video from brainpop.<br>- <a href="http://www.brainpop.com">www.brainpop.com</a> | <a href="http://www.brainpop.com/math/numbersandoperations/metricvsimperial/">http://www.brainpop.com/math/numbersandoperations/metricvsimperial/</a>   |
| 6. Use scaffolded instruction to introduce changing Linear Units from the student text book.   | Harcourt Ch. 24 Lesson 3  |
| 7. Introduce Customary Capacity and Weight using student text book.  | Harcourt Ch. 24 Lesson 4  |
| 8. Introduce Metric Capacity and Mass using student text book.   | Harcourt Ch. 24 Lesson 5  |
| 9. Use united streaming to reinforce customary and metric units of capacity and weight.  | <a href="http://player.discoveryeducation.com/index.cfm?guidAssetId=7910D702-285D-4D01-8FE2-901E13688FFC&amp;blnFromSearch=1&amp;productcode=US">http://player.discoveryeducation.com/index.cfm?guidAssetId=7910D702-285D-4D01-8FE2-901E13688FFC&amp;blnFromSearch=1&amp;productcode=US</a> |
| 10. Introduce Time and Temperature using student text book.  | Harcourt Ch. 24 Lesson 6  |

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| <p>11. Reinforce converting Capacity units, Time, and Temperature using modeling and smart board.</p> <p>12. Introduce Perimeter using teacher modeling and student text.</p> <p>13. Use Harcourt Math Center to introduce the concept of Circumference.</p> <p>14. Use teacher modeling and Harcourt text to reinforce the concept of Circumference.</p> <p>15. Use united streaming to introduce area of polygons.</p> <p>16. Use grid paper and Harcourt text to demonstrate finding area of polygons.</p> <p>17. Reinforce Perimeter and Area using "Around The Room" activity.</p> <p>18. Use grid paper and Harcourt text to relate perimeter and area.</p> <p>19. Use folding geometric shapes and Harcourt text to demonstrate nets.</p> <p>20. Use a folded net, teacher modeling, and Harcourt text to demonstrate finding surface area of rectangular prisms.</p> | <p>Smart Board Activity</p> <p>Harcourt Ch. 25 Lesson 2</p> <p>Harcourt Math Center</p> <p>Harcourt Ch. 25 Lesson 4</p> <p><a href="http://player.discoveryeducation.com/index.cfm?guidAssetId=4A63E82C-0C02-4524-B99D-6B57E88A34AD&amp;blnFromSearch=1&amp;productcode=US">http://player.discoveryeducation.com/index.cfm?guidAssetId=4A63E82C-0C02-4524-B99D-6B57E88A34AD&amp;blnFromSearch=1&amp;productcode=US</a></p> <p>grid paper<br/>Harcourt Ch. 26 Lesson 2</p> <p>Classroom items<br/>Measurement tools</p> <p>Grid paper<br/>Harcourt Ch. 26 Lesson 3</p> <p>Folding geometric shapes.<br/>Harcourt Ch. 27 Lesson 1</p> <p>Nets<br/>Harcourt Ch. 27 Lesson 2</p> |
| <b>Career Connections</b>  |  |
| <p>Discuss various occupations involving measurement: carpet installers, contractors, concrete installers, siding installers, etc.</p>   |  |