

Function of Geometry in Construction
Marit Oberle and Sarah Streitz

MN 9, 10, and 11 Geometry and Measurement Strand

| Standard | Benchmark | Curriculum | Assessment |
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| <p>Calculate measurements of plane and solid geometric figures; know that physical measurements depend on the choice of a unit and that they are approximations.</p> | <p>9.3.1.2. Compose and decompose two- and three-dimensional figures; use decomposition to determine the perimeter, area, surface area and volume of various figures.</p> | <p>Describing What You See http://www.glencoe.com/ Model Points, Lines, Planes http://www.glencoe.com</p> <p>Angles and Their Parts http://www.glencoe.com Measure and Classify Angles http://www.glencoe.com Determine the Measurement of Angles http://www.glencoe.com/</p> <p>Parallel and Perpendicular Lines Activities http://www.geogebra.org/en/upload/files/UC_MAT/</p> <p>Scale Factor http://www.youtube.com/watch?v=XtkU4VkWh8I</p> <p>Surface Area http://glencoe.com/sites/common_assets/mathematics/</p> | <p>GeoGebra Assignment http://www.geogebra.org</p> <p>Angles Quiz http://www.glencoe.com</p> <p>Parallel and Perpendicular Lines Reflection</p> <p>Scale Factor Quiz http://www.glencoe.com</p> <p>Surface Area http://sketchup.google.com</p> <p>Geometry 101 http://www.geogebra.org http://voicethread.com</p> |
| <p>Calculate measurements of plane and solid geometric figures; know that physical measurements depend on the choice of a unit and that they are approximations.</p> | <p>9.3.1.3. Understand that quantities associated with physical measurements must be assigned units; apply such units correctly in expressions, equations and problem solutions that involve</p> | <p>Remodeling Project</p> | <p>Budget Spreadsheet http://www.google.com/google-d-s/spreadsheets/</p> |

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| | measurements; and convert between measurement systems. | | |
| Calculate measurements of plane and solid geometric figures; know that physical measurements depend on the choice of a unit and that they are approximations. | 9.3.1.5. Make reasonable estimates and judgments about the accuracy of values resulting from calculations involving measurements. | Remodeling Project | Budget Spreadsheet http://www.google.com/google-d-s/spreadsheets/ |
| Construct logical arguments, based on axioms, definitions and theorems, to prove theorems and other results in geometry. | 9.3.2.5. Use technology tools to examine theorems, make and test conjectures, <i>perform constructions and develop mathematical reasoning skills in multi-step problems</i> . The tools may include compass and straight edge, <i>dynamic geometry software, design software</i> or Internet applets. | GeoGebra Activities <i>Inserting an Image in GeoGebra</i> http://www.youtube.com/watch?v=c5DSDqMJfig Google SketchUp Activities <i>Constructing a Chair</i> http://www.youtube.com/watch?v=RCqr3ZJ8Igc | http://www.geogebra.org http://sketchup.google.com |

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Educational Technology Standards for Students

| Standard | Benchmark | Curriculum | Assessment |
|---------------------------------|--|--|---|
| Creativity and Innovation | <p>a. apply existing knowledge to generate new ideas, products, or processes.</p> <p>b. create original works as a means of personal or group expression.</p> <p>c. use models and simulations to explore complex systems and issues.</p> | <p>Animoto http://www.animoto.com</p> <p>VoiceThread http://voicethread.com</p> <p>GeoGebra http://www.geogebra.org</p> <p>Google SketchUp http://sketchup.google.com</p> <p>360 Cities Virtual Field Trip Assignment http://www.360cities.net/</p> | <p>Geometry 101 Assessment</p> <p>Google SketchUp Create a Chair</p> <p>Google SketchUp Design a Remodeling Plan</p> |
| Communication and Collaboration | <p>a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.</p> <p>b. communicate information and ideas effectively to multiple audiences using a variety of media and formats.</p> <p>d. contribute to</p> | <p>Remodeling Project Development <i>Working with GoogleDocs</i> http://www.google.com/google-d-s</p> <p>Providing Feedback via Moodle Forums</p> <p>Remodeling Project Presentation http://www.jingproject.com/ http://prezi.com/ http://www.google.com/google-d-s/presentations/ http://xtranormal.com</p> | <p>Project Portfolio and Pitch</p> |

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| | <p>project teams to produce original works or solve problems.</p> | | |
| <p>Critical Thinking, Problem Solving, and Decision Making</p> | <p>a. identify and define authentic problems and significant questions for investigation.</p> <p>b. plan and manage activities to develop a solution or complete a project.</p> <p>c. collect and analyze data to identify solutions and/or make informed decisions.</p> | <p>Remodeling Project <i>selection of resources (ie materials, supplies, labor), collection of pricing information and the organization of a general plan; design a scale drawing of their remodeling plan; organize and display the budget and drawing using technology which they present electronically</i></p> <p>Working with GoogleDocs http://www.google.com/google-d-s</p> <p>Presentation Options http://www.jingproject.com/ http://prezi.com/ http://www.google.com/google-d-s/presentations/ http://xtranormal.com</p> | <p>Project Portfolio and Pitch</p> |
| <p>Digital Citizenship</p> | <p>b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.</p> | <p>Providing Feedback via Moodle Forums</p> <p>Working on a Remodeling Project Team</p> <p>Exploring New Technology Tools</p> | <p>Function of Geometry in Construction Unit</p> |

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| | | <p>When am I ever going to use Geometry? Forum</p> <p>Animoto Presentation</p> | |
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