

# Topics in Math: Geometry in the Workplace

| ESTABLISHED GOALS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <p><u>Competencies:</u></p> <ul style="list-style-type: none"> <li>Students will demonstrate the ability to solve problems involving one- two- and three-dimensional objects by applying algebraic models and geometric formulas.</li> <li>Students will demonstrate the ability to use mathematics to model real world problems by building and analyzing the appropriate expression, equation, or function.</li> <li>Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials.</li> <li>Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences.</li> <li>Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style.</li> </ul> <p><u>Content Standards:</u></p> <ul style="list-style-type: none"> <li>G.CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.</li> <li>G.GPE.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles</li> <li>G.MG.1 Use geometric shapes, their measures, and their properties to describe objects</li> <li>G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).</li> <li>G.GMD.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.</li> <li>G.GMD.4 Identify the shapes of two-dimensional cross-sections of three dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.</li> <li>MP2 Reason abstractly and quantitatively.</li> <li>MP4 Model with mathematics.</li> <li>MP5 Use appropriate tools strategically.</li> <li>MP6 Attend to precision.</li> </ul> | Transfer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <b>Content Area Literacy Standards</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>21<sup>st</sup> Century Skills</b>                                                                                                                                                                                                                     |
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| <ul style="list-style-type: none"> <li>● RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.</li> <li>● RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 9-10 texts and topics</i>.</li> <li>● RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.</li> </ul> | <ul style="list-style-type: none"> <li>● <i>reason effectively</i></li> <li>● <i>solve problems</i></li> <li>● <i>access and evaluate information</i></li> <li>● <i>use and manage information</i></li> <li>● <i>be self-directed learners</i></li> </ul> |

| <b>Evaluative Criteria</b> | <b>Assessment Evidence</b> |
|----------------------------|----------------------------|
|                            | PERFORMANCE TASK(S):       |
|                            | OTHER EVIDENCE:            |

| <i>Summary of Key Learning Events and Instruction</i> |                                                    |                               |
|-------------------------------------------------------|----------------------------------------------------|-------------------------------|
| <b>Science Integration</b>                            | <b>College, Career, and Civic Life Integration</b> | <b>Technology Integration</b> |
|                                                       |                                                    |                               |
| <b>District Materials</b>                             | <b>Distance Learning/Field Trips</b>               | <b>Technology Resources</b>   |

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