

GLENCOE CORRELATION
GEOMETRY: CONCEPTS AND APPLICATIONS © 2004
MASSACHUSETTS
 Revised 2000 Mathematics Curriculum Framework
 Learning Standards for Geometry

LEARNING STANDARDS	PAGE REFERENCES
Geometry	
Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships Specify locations and describe spatial relationships using coordinate geometry and other representational systems Apply transformations and use symmetry to analyze mathematical situations Use visualization, spatial reasoning, and geometric modeling to solve problems <i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i>	
G.G.1 Recognize special types of polygons (e.g., isosceles triangles, parallelograms, and rhombuses). Apply properties of sides, diagonals, and angles in special polygons; identify their parts and special segments (e.g., altitudes, midsegments); determine interior angles for regular polygons. Draw and label sets of points such as line segments, rays, and circles. Detect symmetries of geometric figures.	SE: 228-233, 234-239, 310-315, 316-321, 402-407, 408-412, 434-439, 454-458 TWE: ICE 229-230, 435
G.G.2 Write simple proofs of theorems in geometric situations, such as theorems about congruent and similar figures, parallel or perpendicular lines. Distinguish between postulates and theorems. Use inductive and deductive reasoning, as well as proof by contradiction. Given a conditional statement, write its inverse, converse, and contrapositive.	SE: 24-28, 162-167, 210-214, 215-219, 251-255, 362-367, 644-648, 649-653, 654-659, 660-665
G.G.3 Apply formulas for a rectangular coordinate system to prove theorems.	SE: 660-665, 670 #27-#28, 671 #15 TWE: EC 665 ICE 661-663
G.G.4 Draw congruent and similar figures using a compass, straightedge, protractor, or computer software. Make conjectures about methods of construction. Justify the conjectures by logical arguments. (10.G.2)	SE: 29-34 <i>Hands-On Geometry</i> 65, 99, 107, 130-131, 162, 210, 474-475 TWE: ICE 30
G.G.5 Apply congruence and similarity correspondences (e.g., $\triangle ABC \cong \triangle XYZ$) and properties of the figures to find missing parts of geometric figures, and provide logical justification. (10.G.4)	SE: 203-207, 210-214, 215-219, 251-255, 362-367, 368-373, 374-378 TWE: ICE 204, 364-365, 369-371

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G.G.6 Apply properties of angles, parallel lines, arcs, radii, chords, tangents, and secants to solve problems. (10.G.5)	SE: 96-101, 116-121, 122-127, 148-153, 454-458, 462-467, 468-473, 592-597, 600-605 TWE: ICE 149-151
G.G.7 Solve simple triangle problems using the triangle angle sum property, and/or the Pythagorean Theorem.	SE: 193-197, 256-261 TWE: 5MC 198, 262 EC 197, 261 ICE 194-195, 257-258
G.G.8 Use the properties of special triangles (e.g., isosceles, equilateral, 30°-60°-90°, 45°-45°-90°) to solve problems. (10.G.6)	SE: 188-192, 246-250, 251-255, 554-558, 559-563 TWE: 5MC 559 EC 558, 563 ICE 555-556, 560-561
G.G.9 Define the sine, cosine, and tangent of an acute angle. Apply to the solution of problems.	SE: 564-569, 572-577 <i>Investigation</i> 570-571 TWE: 5MC 572 EC 569 ICE 565-567, 573-574 ML 572
G.G.10 Apply the triangle inequality and other inequalities associated with triangles (e.g., the longest side is opposite the greatest angle) to prove theorems and solve problems.	SE: 290-295, 296-300 TWE: 5MC 296, 310 EC 295, 299 ICE 291-292, 297-298 OEA 295
G.G.11 Demonstrate an understanding of the relationship between various representations of a line. Determine a line's slope and x- and y-intercepts from its graph or from a linear equation that represents the line. Find a linear equation describing a line from a graph or a geometric description of the line, e.g., by using the "point-slope" or "slope y-intercept" formulas. Explain the significance of a positive, negative, zero, or undefined slope. (10.P.2)	SE: 168-173, 174-179 TWE: ICE 169, 175-176 OEA 173
G.G.12 Using rectangular coordinates, calculate midpoints of segments, slopes of lines and segments, and distances between two points, and apply the results to the solutions of problems. (10.G.7)	SE: 76-81, 168-173, 262-267 TWE: 5MC 174 EC 81, 173 ICE 78, 169, 171, 263-264
G.G.13 Find linear equations that represent lines either perpendicular or parallel to a given line and through a point, e.g., by using the "point-slope" form of the equation. (10.G.8)	SE: 176-179 TWE: ICE 176
G.G.14 Demonstrate an understanding of the relationship between geometric and algebraic representations of circles.	SE: 618-621 TWE: EC 622 ICE 619

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G.G.15 Draw the results, and interpret transformations on figures in the coordinate plane, e.g., translations, reflections, rotations, scale factors, and the results of successive transformations. Apply transformations to the solution of problems. (10.G.9)	SE: 198-202, 434-438, 687-690, 692-696, 697-702, 703-707 TWE: ICE 688, 693, 698-699, 703-704
G.G.16 Demonstrate the ability to visualize solid objects and recognize their projections and cross sections. (10.G.10)	SE: 496-501 <i>Investigation 502-503</i> TWE: EC 501 OEA 501
G.G.17 Use vertex-edge graphs to model and solve problems. (10.G.11)	SE: 504-509, 516, 522
G.G.18 Use the notion of vectors to solve problems. Describe addition of vectors and multiplication of a vector by a scalar, both symbolically and pictorially. Use vector methods to obtain geometric results. (12.G.3)	SE: <i>Investigation 74-75</i>
Exploratory Concepts and Skills for Grades 9-10	
√ Apply properties of chords, tangents, and secants to solve problems.	SE: 454-458, 468-473, 592-597, 600-605, 606-611, 612-617 TWE: ICE 456, 470-471, 593-594, 601-602
√ Use deduction to establish the validity of geometric conjectures and to prove theorems in Euclidean geometry.	SE: 638-643, 644-648, 649-653, 654-659 TWE: 5MC 649, 654 ICE 639-640, 645, 650-651, 655-656
Learning Standards for Measurement Understand measurable attributes of objects and the units, systems, and processes of measurement Apply appropriate techniques, tools, and formulas to determine measurements <i>Students engage in problem solving, communicating, reasoning, connecting, and representing as they:</i>	
G.M.1 Calculate perimeter, circumference, and area of common geometric figures such as parallelograms, trapezoids, circles, and triangles. (10.M.1)	SE: 35-40, 413-418, 419-424, 425-430, 483-487 TWE: 5MC 425 ICE 36-37, 420-421, 426-427, 484-485
G.M.2 Given the formula, find the lateral area, surface area, and volume of prisms, pyramids, spheres, cylinders, and cones, e.g., find the volume of a sphere with a specified surface area. (10.M.2)	SE: 504-509, 510-515, 516-521, 522-527, 528-533 TWE: ICE 505-508, 511-512, 517-519, 523-524, 529-530
G.M.3 Relate changes in the measurement of one attribute of an object to changes in other attributes, e.g., how changing the radius or height of a cylinder affects its surface area or volume. (10.M.3)	SE: 534-539 TWE: ICE 536-537
G.M.4 Describe the effects of approximate error in measurement and rounding on measurements and on computed values from measurements. (10.M.4)	Precision of measurement is defined and found. SE: 58-60

LEARNING STANDARDS	PAGE REFERENCES
G.M.5 Use dimensional analysis for unit conversion and to confirm that expressions and equations make sense. (12.M.2)	See Glencoe's <i>Geometry</i> © 2004. Dimensional analysis is found: SE: 730-731
Exploratory Concepts and Skills for Grades 9-10	
√ Explore the scientific use of different systems of measurement, e.g., centimeter-gram-second (CGS), Scientific International (SI).	SE: 58-60 TWE: ICE 58

Codes Used for TWE Pages

5MC	5-Minute Check
EC	Extra Credit
ICE	In-Class Example
ML	Motivating the Lesson
OEA	Open-Ended Assessment