

Geometry Pacing Guide 2010-2011

Board Approved Curriculum: *Discovering Geometry*

	Topics	Indicators	Benchmarks	Aligned Instructional Resources	Assessments
Timeline	Functions	P1. Define function formally and with $f(x)$ notation.	PB. Identify and classify functions as linear or nonlinear, and contrast their properties using tables, graphs or equations.	<p>ODE - Linear Functions: Are You Ready for the REAL World?</p> <p>ODE - Exploring Function Graphs</p> <p>* Supplemental materials are needed for scientific notation.</p>	<p>Window for Benchmark Sept. 6 Sept.10</p>
<p>8/18/10 to 9/15/10 (20 days)</p>		P4. Use algebraic representations and functions to describe and generalize geometric properties and relationships.	<p>PD. Use algebraic representations, such as tables, graphs, expressions, functions and inequalities, to model and solve problem situations.</p>		
		P5. Solve simple linear and nonlinear equations and inequalities having square roots as coefficients and solutions.			
		P6. Solve equations and inequalities having rational expressions as coefficients and solutions.			
		P10. Solve real-world problems that can be modeled using linear, quadratic, exponential or square root functions.			
	Basic Definition	G2. Recognize and explain the necessity for certain terms to remain undefined, such as point, line and plane.	GA. Formally define geometric figures.	1.1 - 1.5, 2.5, 2.6 DISCUSS PARALLEL/PERPENDICULAR SLOPES	

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9/16/09 to 9/29/09 (10 days)	Triangles	G3. Make, test and establish the validity of conjectures about geometric properties and relationships using counterexample, inductive and deductive reasoning, and paragraph or two-column proof, including: b. prove theorems involving triangle similarity and congruence;	GH. Establish the validity of conjectures about geometric objects, their properties and relationships by counterexample, inductive and deductive reasoning, and critiquing arguments made by others.	4.1 - 4.6, 11.1, 11.2 CONCENTRATE MORE ON INFORMAL PROOFS	1st Quarter Exam
9/30/10 to 11/29/09		G5. Construct congruent figures and similar figures using tools, such as compass, straightedge, and protractor or dynamic geometry software.	GE. Draw and construct representations of two and three-dimensional geometric objects using a variety of tools, such as straightedge, compass and technology.		
(22 days)		G1. Formally define and explain key aspects of geometric figures, including: a. interior and exterior angles of polygons;	GA. Formally define geometric figures.	5.1 - 5.6	

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11/1/09 to 11/19/09 (15 days)	Polygons	of conjectures about geometric properties and relationships using counterexample, inductive and deductive reasoning, and paragraph or two-column proof, including: c. prove theorems involving properties of lines, angles, triangles and quadrilaterals;	GH. Establish the validity of conjectures about geometric objects, their properties and relationships by counterexample, inductive and deductive reasoning, and critiquing arguments made by others.	CONCENTRATE MORE ON INFORMAL PROOFS	
		G6. Identify the reflection and rotation symmetries of two- and three dimensional figures.	GA. Formally define geometric figures. GF. Represent and model transformations in a coordinate plane and describe the results.		Window for Math Benchmark
		G7. Perform reflections and rotations using compass and straightedge constructions and dynamic geometry software.	GE. Draw and construct representations of two and three-dimensional geometric objects using a variety of tools, such as straightedge, compass and technology.		

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	Topics	Indicators	Benchmarks	Aligned Instructional Resources	Assessments
11/22/10 to 12/15/10 (16 days)	Transformations	G8. Derive coordinate rules for translations, reflections and rotations of geometric figures in the coordinate plane.	GF. Represent and model transformations in a coordinate plane and describe the results.	7.1 - 7.3 ODE - Transformations	Dec. 6 - Dec. 10
		G9. Show and describe the results of combinations of translations, reflections and rotations (compositions); e.g., perform compositions and specify the result of a composition as the outcome of a single motion, when applicable.			
	1st Semester Exams				Window for 1st Semester Exams Dec. 16 - Dec.21
12/16/09 to 12/21/09 (4 days)		M5. Determine the measures of central and inscribed angles and their associated major and minor arcs.	MD. Use proportional reasoning and apply indirect measurement techniques, including right triangle trigonometry and properties of similar triangles, to solve problems involving measurements and rates.		

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	Topics	Indicators	Benchmarks	Aligned Instructional Resources	Assessments
1/5/10 to 2/2/10 (20 days)	Circles	G1. Formally define and explain key aspects of geometric figures, including: d. circles (radius, diameter, chord, circumference, major arc, minor arc, sector, segment, inscribed angle).	GA. Formally define geometric figures.	1.6, 6.1 - 6.5 ODE - Solving Problems Involving Chords, Radii, Tangents	
		G10. Solve problems involving chords, radii and arcs within the same circle.	GC. Recognize and apply angle relationships in situations involving intersecting lines, perpendicular lines and parallel lines.		
	Pythagorean Theorem	G3. Make, test and establish the validity of conjectures about geometric properties and relationships using counterexample, inductive and deductive reasoning, and paragraph or two-column proof, including: a. prove the Pythagorean Theorem;	GH. Establish the validity of conjectures about geometric objects, their properties and relationships by counterexample, inductive and deductive reasoning, and critiquing arguments made by others.	91 - 9.6 USE MORE INFORMAL PROOFS	
2/3/10 to 2/23/10 (14 days)		N1. Connect physical, verbal and symbolic representations of irrational numbers; e.g., construct $\sqrt{2}$ as a hypotenuse or on a number line.	ND. Connect physical, verbal and symbolic representations of integers, rational numbers and irrational numbers.		

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	Topics	Indicators	Benchmarks	Aligned Instructional Resources	Assessments
2/3/10 to 2/23/10 (Con't.)	Pythagorean Theorem	N2. Explain the meaning of the nth root.	ND. Connect physical, verbal and symbolic representations of integers, rational numbers and irrational numbers.		
		N4. Approximate the nth root of a given number greater than zero between consecutive integers when n is an integer; e.g., the 4th root of 50 is between 2 and 3.	NI. Estimate, compute and solve problems involving scientific notation, square roots and numbers with integer exponents.		
		P2. Describe and compare characteristics of the following families of functions: square root, cubic, absolute value and basic trigonometric functions; e.g., general shape, possible number of roots, domain and range.	PB. Identify and classify functions as linear or nonlinear, and contrast their properties using tables, graphs or equations.		
2/24/10 to	Area and Volume	M1. Explain how a small error in measurement may lead to a large error in calculated results.	MA. Solve increasingly complex non-routine measurement problems and check for reasonableness of results.	1.8, 8.1 - 8.7, 10.1 - 10.4, 10.6, 10.7 ODE - Three-Dimensional Similarity	Window for OGT Mar. 14- Mar. 18
		P2. Describe and compare characteristics of the following families of functions: square root, cubic, absolute value and basic trigonometric functions; e.g., general shape, possible number of roots, domain and range.	PB. Identify and classify functions as linear or nonlinear, and contrast their properties using tables, graphs or equations.		

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	Topics	Indicators	Benchmarks	Aligned Instructional Resources	Assessments
3/25/10 (22 days)		P3. Solve equations and formulas for a specified variable; e.g., express the base of a triangle in terms of the area and height.	PD. Use algebraic representations, such as tables, graphs, expressions, functions and inequalities, to model and solve problem situations.		
	2/24/10 to 3/25/10 (Cont.)	Area and Volume	N2. Explain the meaning of the nth root.	ND. Connect physical, verbal and symbolic representations of integers, rational numbers and irrational numbers.	1.8, 8.1 - 8.7, 10.1 - 10.4, 10.6, 10.7 ODE - Three-Dimensional Similarity
N4. Approximate the nth root of a given number greater than zero between consecutive integers when n is an integer; e.g., the 4th root of 50 is between 2 and 3.			NI. Estimate, compute and solve problems involving scientific notation, square roots and numbers with integer exponents.		
4/4/10 to 4/15/10	Trigonometric Ratios	P8. Graph the quadratic relationship that defines circles.	PG. Solve quadratic equations with real roots by graphing, formula and factoring.	12.1 - 12.5	
		P12. Describe the relationship between slope of a line through the origin and the tangent function of the angle created by the line and the positive x-axis.	PJ. Describe and interpret rates of change from graphical and numerical data.		
		P7. Solve systems of linear inequalities.	PH. Solve systems of linear equations involving two variables graphically and symbolically.		

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	Topics	Indicators	Benchmarks	Aligned Instructional Resources	Assessments
(10 days)		P11. Solve real-world problems that can be modeled, using systems of linear equations and inequalities	PH. Solve systems of linear equations involving two variables graphically and symbolically.		
4/18/09 - 5/6/09 (13 days)	Constructions & Measurement	M1. Explain how a small error in measurement may lead to a large error in calculated results.	MA. (11th Grade) Explain differences among accuracy, precision and error, and describe how each of those can affect solutions in measurement situations.	3.1 - 3.8	
		M2. Calculate relative error.			
		M3. Explain the difference between absolute error and relative error in measurement.			
		M4. Give examples of how the same absolute error can be problematic in one situation but not in another; e.g., compare “accurate to the nearest foot” when measuring the height of a person versus when measuring the height of a mountain.	MA. (11th Grade) Explain differences among accuracy, precision and error, and describe how each of those can affect solutions in measurement situations.		

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4/18/09 to 5/6/09 (Con't.)	Constructions & Measurement	G1. Formally define and explain key aspects of geometric figures, including: b. segments related to triangles (median, altitude, midsegment); c. points of concurrency related to triangles (centroid, incenter, orthocenter, circumcenter);	GA. Formally define geometric figures.		
		G3. Make, test and establish the validity of conjectures about geometric properties and relationships using counterexample, inductive and deductive reasoning, and paragraph or two-column proof, including: d. test a conjecture using basic constructions made with a compass and straightedge or technology.	GH. Establish the validity of conjectures about geometric objects, their properties and relationships by counterexample, inductive and deductive reasoning, and critiquing arguments made by others.		
		G4. Construct right triangles, equilateral triangles, parallelograms, trapezoids, rectangles, rhombuses, squares and kites, using compass and straightedge or dynamic geometry software.	GE. Draw and construct representations of two and three-dimensional geometric objects using a variety of tools, such as straightedge, compass and technology.		

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	Topics	Indicators	Benchmarks	Aligned Instructional Resources	Assessments
	Constructions & Measurement	G5. Construct congruent figures and similar figures using tools, such as compass, straightedge, and protractor or dynamic geometry software.	GE. Draw and construct representations of two and three-dimensional geometric objects using a variety of tools, such as straightedge, compass and technology.		
4/18/09 to 5/6/09 (Con't.)	Data Analysis & Probability	D2. Represent and analyze bivariate data using appropriate graphical displays (scatterplots, parallel box-and-whisker plots, histograms with more than one set of data, tables, charts, spreadsheets) with and without technology.	DA. Create, interpret and use graphical displays and statistical measures to describe data; e.g., box-and-whisker plots, histograms, scatterplots, measures of center and variability.	ODE - Using Statistical Graphs to Compare Data ODE - Using Geometric Probability	
		D3. Display bivariate data where at least one variable is categorical.			
		D4. Identify outliers on a data display; e.g., use interquartile range to identify outliers on a box-and-whisker plot.			
5/9/10		D6. Interpret the relationship between two variables using multiple graphical displays and statistical measures; e.g., scatterplots, parallel box-and-whisker plots, and measures of center and spread.			

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to 5/20/10 (10 days)		D1. Describe measures of center and the range verbally, graphically and algebraically.	DC. Compare the characteristics of the mean, median and mode for a given set of data, and explain which measure of center best represents the data.		
		N3. Use factorial notation and computations to represent and solve problem situations involving arrangements.	NC. (11th Grade) Apply factorials and exponents, including fractional exponents, to solve practical problems.		
	5/9/10 to 5/20/10	Data Analysis & Probability	D6. Interpret the relationship between two variables using multiple graphical displays and statistical measures; e.g., scatterplots, parallel box-and-whisker plots, and measures of center and spread.		
D5. Provide examples and explain how a statistic may or may not be an attribute of the entire population; e.g., intentional or unintentional bias may be present.			DG. Describe sampling methods and analyze the effects of method chosen on how well the resulting sample represents the population.		
D7. Model problems dealing with uncertainty with area models (geometric probability).			DJ. Compute probabilities of compound events, independent events, and simple dependent events.		

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	Topics	Indicators	Benchmarks	Aligned Instructional Resources	Assessments
(Cont.)		D8. Differentiate and explain the relationship between the probability of an event and the odds of an event, and compute one given the other.	DK. Make predictions based on theoretical probabilities and experimental results.		
	Final Exam				Window for 2nd Semester Exams May 23 - May 26