

8th Grade Math

Students will identify and apply concepts related to angles, bisectors, transversals, and create patterns using transformations.		
M.O.8.3.1	justify the relationships among corresponding, alternate interior, alternate exterior and vertical angles when parallel lines are cut by a transversal using models, pencil/paper, graphing calculator, and technology.	DOK 2
	<ul style="list-style-type: none"> Know definition of corresponding angles 	
	<ul style="list-style-type: none"> Know definition of alternate interior angles 	
	<ul style="list-style-type: none"> Know definition of alternate exterior angles 	
	<ul style="list-style-type: none"> Know definition of vertical angles 	
	<ul style="list-style-type: none"> Know definition of parallel lines 	
	<ul style="list-style-type: none"> Know definition of transversal 	
	<ul style="list-style-type: none"> Justify the relationships among corresponding, alternate interior, alternate exterior, and vertical angles when parallel lines are cut by a transversal using models. 	
	<ul style="list-style-type: none"> Justify the relationships among corresponding, alternate interior, alternate exterior, and vertical angles when parallel lines are cut by a transversal using pencil/paper. 	
	<ul style="list-style-type: none"> Justify the relationships among corresponding, alternate interior, alternate exterior, and vertical angles when parallel lines are cut by a transversal using graphing calculators. 	
	<ul style="list-style-type: none"> Justify the relationships among corresponding, alternate interior, alternate exterior, and vertical angles when parallel lines are cut by a transversal using technology. 	
M.O.8.3.3	identify, apply, and construct perpendicular and angle bisectors with and without technology) given a real-world situation,.	DOK 1
M.O.8.3.4	create geometric patterns including tiling, art design, tessellations and scaling using	DOK 3

	transformations (rotations, reflections, translations) and predict results of combining, subdividing, and changing shapes of plane figures and solids.	
M.O.8.2.9	represent and solve real-world grade-appropriate problems using multiple strategies and justify solutions.	DOK 3
M.O.8.3.2	classify polyhedrons according to the number and shape of faces; use inductive reasoning to determine the relationship between vertices, faces and edges (edges + 2 = faces + vertices).	DOK 3
	<ul style="list-style-type: none"> • Know definition of polyhedron 	
	<ul style="list-style-type: none"> • Know definition of faces 	
	<ul style="list-style-type: none"> • Know definition of vertices 	
	<ul style="list-style-type: none"> • Know definition of edges 	
	<ul style="list-style-type: none"> • Know definition of inductive reasoning 	
	<ul style="list-style-type: none"> • Classify polyhedron according to the number of faces 	
	<ul style="list-style-type: none"> • Classify polyhedron according to the shape of faces 	
	<ul style="list-style-type: none"> • Use inductive reasoning to determine the relationship between vertices, faces, and edges 	
	<ul style="list-style-type: none"> • Understand edges + 2 = faces + vertices 	
M.O.8.4.1	select and apply an appropriate method to solve; justify the method and the reasonableness of the solution of problems involving volume of <ul style="list-style-type: none"> • prisms • cylinders • cones • pyramids • spheres given real-world problem solving situations.	DOK 2
	<ul style="list-style-type: none"> • Know definition of prisms 	
	<ul style="list-style-type: none"> • Know definition of cylinders 	
	<ul style="list-style-type: none"> • Know definition of cones 	
	<ul style="list-style-type: none"> • Know definition of pyramids 	
	<ul style="list-style-type: none"> • Know definition of spheres 	
	<ul style="list-style-type: none"> • Know definition of volume 	
	<ul style="list-style-type: none"> • Select an appropriate method to solve 	

	problems involving volume of prisms given real-world problem solving situations	
	<ul style="list-style-type: none"> • Select an appropriate method to solve problems involving volume of cylinders given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Select an appropriate method to solve problems involving volume of cones given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Select an appropriate method to solve problems involving volume of pyramids given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Select an appropriate method to solve problems involving volume of spheres given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Apply an appropriate method to solve problems involving volume of prisms given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Apply an appropriate method to solve problems involving volume of cylinders given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Apply an appropriate method to solve problems involving volume of cones given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Apply an appropriate method to solve problems involving volume of pyramids given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Apply an appropriate method to solve problems involving volume of spheres given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Justify the method of the solution of the problems involving volume of prisms given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Justify the method of the solution of the problems involving volume of cylinders given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Justify the method of the solution of the problems involving volume of cones given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Justify the method of the solution of the problems involving volume of pyramids given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Justify the method of the solution of the problems involving volume of spheres given real-world problem solving situations 	
	<ul style="list-style-type: none"> • Justify the reasonableness of the solution of 	

	the problems involving volume of prisms given real-world problem solving situations	
	<ul style="list-style-type: none"> Justify the reasonableness of the solution of the problems involving volume of cylinders given real-world problem solving situations 	
	<ul style="list-style-type: none"> Justify the reasonableness of the solution of the problems involving volume of cones given real-world problem solving situations 	
	<ul style="list-style-type: none"> Justify the reasonableness of the solution of the problems involving volume of pyramids given real-world problem solving situations 	
	<ul style="list-style-type: none"> Justify the reasonableness of the solution of the problems involving volume of spheres given real-world problem solving situations 	
M.O.8.4.2	solve problems involving missing measurements in plane and solid geometric figures using formulas and drawings including irregular figures, models or definitions.	DOK 2
	<ul style="list-style-type: none"> Know definition of plane geometric figures 	
	<ul style="list-style-type: none"> Know definition of solid geometric figures 	
	<ul style="list-style-type: none"> Know definition of irregular figures 	
	<ul style="list-style-type: none"> Solve problems involving missing measurements in plane geometric figures using formulas 	
	<ul style="list-style-type: none"> Solve problems involving missing measurements in solid geometric figures using formulas 	
	<ul style="list-style-type: none"> Solve problems involving missing measurements in plane geometric figures using drawings of irregular figures 	
	<ul style="list-style-type: none"> Solve problems involving missing measurements in solid geometric figures using drawings of irregular figures 	
	<ul style="list-style-type: none"> Solve problems involving missing measurements in plane geometric figures using drawings of models 	
	<ul style="list-style-type: none"> Solve problems involving missing measurements in solid geometric figures using drawings of models 	
	<ul style="list-style-type: none"> Solve problems involving missing measurements in plane geometric figures using drawings of definitions 	
	<ul style="list-style-type: none"> Solve problems involving missing measurements in solid geometric figures using drawings of definitions 	

	<ul style="list-style-type: none"> • Know definition of plane geometric figures 	
M.O.8.5.1	determine and explain whether a real-world situation involves permutations or combinations, then use appropriate technology to solve the problem.	DOK 2
	<ul style="list-style-type: none"> • Know definition of permutation 	
	<ul style="list-style-type: none"> • Know definition of combination 	
	<ul style="list-style-type: none"> • Determine whether a real-world situation involves permutations 	
	<ul style="list-style-type: none"> • Determine whether a real-world situation involves combination 	
	<ul style="list-style-type: none"> • Explain whether a real-world situation involves permutations 	
	<ul style="list-style-type: none"> • Explain whether a real-world situation involves combination 	
	<ul style="list-style-type: none"> • Use appropriate technology to solve real-world problems involving permutations 	
	<ul style="list-style-type: none"> • Use appropriate technology to solve real-world problems involving combinations 	
M.O.8.5.4	analyze problem situations, games of chance, and consumer applications using random and non-random samplings to determine probability, make predictions, and identify sources of bias.	DOK 3
	<ul style="list-style-type: none"> • Know definition of random sampling 	
	<ul style="list-style-type: none"> • Know definition of non-random sampling 	
	<ul style="list-style-type: none"> • Know definition of probability 	
	<ul style="list-style-type: none"> • Analyze problem situations using random sampling to determine probability 	
	<ul style="list-style-type: none"> • Analyze games of chance using random sampling to determine probability 	
	<ul style="list-style-type: none"> • Analyze consumer applications using random sampling to determine probability 	
	<ul style="list-style-type: none"> • Analyze problem situations using non-random sampling to determine probability 	
	<ul style="list-style-type: none"> • Analyze games of chance using non-random sampling to determine probability 	
	<ul style="list-style-type: none"> • Analyze consumer applications using non-random sampling to determine probability 	
	<ul style="list-style-type: none"> • Analyze problem situations using random sampling to make predictions 	
	<ul style="list-style-type: none"> • Analyze games of chance using random sampling to make predictions 	
	<ul style="list-style-type: none"> • Analyze consumer applications using 	

	random sampling to make predictions	
	<ul style="list-style-type: none"> Analyze problem situations using non-random sampling to make predictions 	
	<ul style="list-style-type: none"> Analyze games of chance using non-random sampling to make predictions 	
	<ul style="list-style-type: none"> Analyze consumer applications using non-random sampling to make predictions 	
	<ul style="list-style-type: none"> Analyze problem situations using random sampling to identify sources of bias 	
	<ul style="list-style-type: none"> Analyze games of chance using random sampling to identify sources of bias 	
	<ul style="list-style-type: none"> Analyze consumer applications using random sampling to identify sources of bias 	
	<ul style="list-style-type: none"> Analyze problem situations using non-random sampling to identify sources of bias 	
	<ul style="list-style-type: none"> Analyze games of chance using non-random sampling to identify sources of bias 	
	<ul style="list-style-type: none"> Analyze consumer applications using non-random sampling to identify sources of bias 	
M.O.8.5.5	<p>draw inferences, make conjectures and construct convincing arguments involving</p> <ul style="list-style-type: none"> different effects that changes in data values have on measures of central tendency misuses of statistical or numeric information, based on data analysis of same and different sets of data. 	DOK 3
	<ul style="list-style-type: none"> Know definition of central tendency 	
	<ul style="list-style-type: none"> Know definition of statistical information 	
	<ul style="list-style-type: none"> Know definition of numeric information 	
	<ul style="list-style-type: none"> Know definition of data analysis 	
	<ul style="list-style-type: none"> Draw inferences involving different effects that changes in data values have on measure of central tendency 	
	<ul style="list-style-type: none"> Draw inferences involving misuses of statistical information based on data analysis of same sets of data 	
	<ul style="list-style-type: none"> Draw inferences involving misuses of statistical information based on data analysis of different sets of data 	
	<ul style="list-style-type: none"> Make conjectures involving different effects that changes in data values have on measure of central tendency 	
	<ul style="list-style-type: none"> Make conjectures involving misuses of statistical information based on data analysis of same sets of data 	

	<ul style="list-style-type: none"> • Make conjectures involving misuses of statistical information based on data analysis of different sets of data 	
	<ul style="list-style-type: none"> • Construct convincing arguments involving different effects that changes in data values have on measure of central tendency 	
	<ul style="list-style-type: none"> • Construct convincing arguments involving misuses of statistical information based on data analysis of same sets of data 	
	<ul style="list-style-type: none"> • Construct convincing arguments involving misuses of statistical information based on data analysis of different sets of data 	
	<ul style="list-style-type: none"> • Draw inferences involving misuses of numeric information based on data analysis of same sets of data 	
	<ul style="list-style-type: none"> • Draw inferences involving misuses of numeric information based on data analysis of different sets of data 	
	<ul style="list-style-type: none"> • Make conjectures involving misuses of numeric information based on data analysis of same sets of data 	
	<ul style="list-style-type: none"> • Make conjectures involving misuses of numeric information based on data analysis of different sets of data 	
	<ul style="list-style-type: none"> • Construct convincing arguments involving misuses of numeric information based on data analysis of same sets of data 	
	<ul style="list-style-type: none"> • Construct convincing arguments involving misuses of numeric information based on data analysis of different sets of data 	
M.O.8.5.3	create and extrapolate information from multiple-bar graphs, box and whisker plots, and other data displays using appropriate technology.	DOK 2
	<ul style="list-style-type: none"> • Know definition of multiple- bar graphs 	
	<ul style="list-style-type: none"> • Know definition box and whisker plots 	
	<ul style="list-style-type: none"> • Create information from multiple bar graphs using appropriate technology 	
	<ul style="list-style-type: none"> • Create information from box and whisker plots using appropriate technology 	
	<ul style="list-style-type: none"> • Create information from other data displays using appropriate technology 	
	<ul style="list-style-type: none"> • Extrapolate information from multiple bar graphs using appropriate technology 	
	<ul style="list-style-type: none"> • Extrapolate information from box and 	

	whisker plots using appropriate technology	
	<ul style="list-style-type: none"> Extrapolate information from other data displays using appropriate technology 	
M.O.8.2.7	formulate and apply a rule to generate an arithmetic, geometric and algebraic pattern.	DOK 2
	<ul style="list-style-type: none"> Know definition of an arithmetic pattern 	
	<ul style="list-style-type: none"> Know definition of a geometric pattern 	
	<ul style="list-style-type: none"> Know definition of an algebraic pattern 	
	<ul style="list-style-type: none"> Formulate a rule to generate an arithmetic pattern 	
	<ul style="list-style-type: none"> Formulate a rule to generate a geometric pattern 	
	<ul style="list-style-type: none"> Formulate a rule to generate an algebraic pattern 	
	<ul style="list-style-type: none"> Apply a rule to generate an arithmetic pattern 	
	<ul style="list-style-type: none"> Apply a rule to generate a geometric pattern 	
	<ul style="list-style-type: none"> Apply a rule to generate an algebraic pattern 	
M.O.8.2.2	identify proportional relationships in real-world situations, then find and select an appropriate method to determine the solution; justify the reasonableness of the solution.	DOK 2
	<ul style="list-style-type: none"> Know definition of proportional relationships 	
	<ul style="list-style-type: none"> Identify proportional relationships in real-world situations 	
	<ul style="list-style-type: none"> Find an appropriate method to determine the solution 	
	<ul style="list-style-type: none"> Select an appropriate method to determine the solution 	
	<ul style="list-style-type: none"> Justify the reasonableness of the solution 	
M.O.8.3.5	create scale models of similar figures using ratio, proportion with pencil/paper and technology and determine scale factor	DOK 2
	<ul style="list-style-type: none"> Know definition of scale model 	
	<ul style="list-style-type: none"> Know definition of similar figures 	
	<ul style="list-style-type: none"> Know definition of ratio 	
	<ul style="list-style-type: none"> Know definition of proportion 	
	<ul style="list-style-type: none"> Know definition of scale factor 	
	<ul style="list-style-type: none"> Create scale models of similar figures using ratio with pencil/paper 	
	<ul style="list-style-type: none"> Create scale models of similar figures using ratio with technology 	

	<ul style="list-style-type: none"> • Create scale models of similar figures using proportion with pencil/paper 	
	<ul style="list-style-type: none"> • Create scale models of similar figures using proportion with technology 	
	<ul style="list-style-type: none"> • Determine scale factor 	
M.O.8.4.3	solve right triangle problems where the existence of triangles is not obvious using the Pythagorean Theorem and indirect measurement in real-world problem solving situations.	DOK 3
	<ul style="list-style-type: none"> • Know the formula for Pythagorean Theorem. 	Knowledge
	<ul style="list-style-type: none"> • Know the definition of right triangle. 	Knowledge
	<ul style="list-style-type: none"> • Identify right triangles. 	Reasoning
	<ul style="list-style-type: none"> • Use the Pythagorean Theorem to solve right triangle problems where the existence of triangles is not obvious. 	Performance
	<ul style="list-style-type: none"> • Solve right triangle problems using indirect measurement in real world problem solving situations. 	Performance
M.O.8.2.10	identify a real life problem involving change over time; make a hypothesis as to the outcome; develop, justify, and implement a method to collect, organize, and analyze data; generalize the results to make a conclusion; compare the hypothesis and the results of the investigation; present the project using words, graphs, drawings, models, or tables.	DOK 4
	<ul style="list-style-type: none"> • Know definition of hypothesis 	
	<ul style="list-style-type: none"> • Identify a real life problem involving change over time 	
	<ul style="list-style-type: none"> • Make a hypothesis as to the outcome of a real life problem involving change over time 	
	<ul style="list-style-type: none"> • Develop a method to collect data 	
	<ul style="list-style-type: none"> • Develop a method to organize data 	
	<ul style="list-style-type: none"> • Develop a method to analyze data 	
	<ul style="list-style-type: none"> • Justify a method to collect data 	
	<ul style="list-style-type: none"> • Justify a method to organize data 	
	<ul style="list-style-type: none"> • Justify a method to analyze data 	

	<ul style="list-style-type: none"> • Implement a method to collect data 	
	<ul style="list-style-type: none"> • Implement a method to organize data 	
	<ul style="list-style-type: none"> • Implement a method to analyze data 	
	<ul style="list-style-type: none"> • Generalize results to make a conclusion 	
	<ul style="list-style-type: none"> • Compare the hypothesis with the results of the investigation 	
	<ul style="list-style-type: none"> • Present the project using words 	
	<ul style="list-style-type: none"> • Present the project using graphs 	
	<ul style="list-style-type: none"> • Present the project using drawings 	
	<ul style="list-style-type: none"> • Present the project using models 	
	<ul style="list-style-type: none"> • Present the project using tables 	
	<ul style="list-style-type: none"> • Know definition of hypothesis 	
	<ul style="list-style-type: none"> • Identify a real life problem involving change over time 	
	<ul style="list-style-type: none"> • Make a hypothesis as to the outcome of a real life problem involving change over time 	
	<ul style="list-style-type: none"> • Develop a method to collect data 	
M.O.8.2.6	graph linear equations and inequalities within the Cartesian coordinate plane by generating a table of values (with and without technology).	DOK 1
	<ul style="list-style-type: none"> • Know definition of linear equations 	
	<ul style="list-style-type: none"> • Know definition of linear inequalities 	
	<ul style="list-style-type: none"> • Know the Cartesian coordinate plane 	
	<ul style="list-style-type: none"> • Graph linear equations within the Cartesian coordinate plane by generating a table of values with technology 	
	<ul style="list-style-type: none"> • Graph linear inequalities within the Cartesian coordinate plane by generating a table of values with technology 	
	<ul style="list-style-type: none"> • Graph linear equations within the Cartesian coordinate plane by generating a table of values without technology 	
	<ul style="list-style-type: none"> • Graph linear inequalities within the Cartesian coordinate plane by generating a table of values without technology 	
M.O.8.2.5	apply inductive and deductive reasoning to write a rule from data in an input/output table, analyze the table and the rule to determine if a functional relationship exists.	DOK 3
	<ul style="list-style-type: none"> • Know definition of inductive reasoning 	
	<ul style="list-style-type: none"> • Know definition of deductive reasoning 	
	<ul style="list-style-type: none"> • Know input/output table is 	
	<ul style="list-style-type: none"> • Know what a functional relationship is 	
	<ul style="list-style-type: none"> • Apply inductive reasoning to write a rule 	

	from data in an input/output table	
	<ul style="list-style-type: none"> Apply deductive reasoning to write a rule from data in an input/output table 	
	<ul style="list-style-type: none"> Analyze an input/output table and a rule to determine if a functional relationship exists 	
M.O.8.2.1	use a variety of strategies to solve one and two-step linear equations and inequalities with rational solutions; defend the selection of the strategy; graph the solutions and justify the reasonableness of the solution.	DOK 2
	<ul style="list-style-type: none"> Know the definition of linear equations. 	Knowledge
	<ul style="list-style-type: none"> Know the definition of linear inequalities. 	Knowledge
	<ul style="list-style-type: none"> Know the definition of rational numbers. 	Knowledge
	<ul style="list-style-type: none"> Solve one -step linear equations with rational solutions. 	Performance
	<ul style="list-style-type: none"> Solve two-step linear equations with rational solutions. 	Performance
	<ul style="list-style-type: none"> Solve one -step linear inequalities with rational solutions. 	Performance
	<ul style="list-style-type: none"> Solve two-step linear inequalities with rational solutions. 	Performance
	<ul style="list-style-type: none"> Graph one-step linear equations with rational solutions. 	Performance
	<ul style="list-style-type: none"> Graph two-step linear equations with rational solutions. 	Performance
	<ul style="list-style-type: none"> Graph one- step linear inequalities with rational solutions. 	Performance
	<ul style="list-style-type: none"> Graph two-step linear inequalities with rational solutions. 	Performance
	<ul style="list-style-type: none"> Defend the selection of the strategies used to solve one-step linear equations. 	Reasoning
	<ul style="list-style-type: none"> Defend the selection of the strategies used 	Reasoning

	to solve two	
	<ul style="list-style-type: none"> Defend the selection of the strategies used to solve one 	Reasoning
	<ul style="list-style-type: none"> Defend the selection of the strategies used to solve two 	Reasoning
	<ul style="list-style-type: none"> Justify the selection of the strategies used to solve one 	Reasoning
	<ul style="list-style-type: none"> Justify the selection of the strategies used to solve two 	Reasoning
	<ul style="list-style-type: none"> Justify the selection of the strategies used to solve one 	Reasoning
M.O.8.2.3	add and subtract polynomials limited to two variables and positive exponents.	DOK 1
	<ul style="list-style-type: none"> Know definition of polynomials 	
	<ul style="list-style-type: none"> Know definition of variables 	
	<ul style="list-style-type: none"> Know definition of exponents 	
	<ul style="list-style-type: none"> Add polynomials limited to two variables and positive exponents 	
	<ul style="list-style-type: none"> Subtract polynomials limited to two variables and positive exponents 	
M.O.8.2.8	determine the slope of a line using a variety of methods including	DOK 1
	<ul style="list-style-type: none"> graphing change in y over change in x equation 	
	<ul style="list-style-type: none"> Know definition of slope 	
	<ul style="list-style-type: none"> Determine the slope of a line using graphing 	
	<ul style="list-style-type: none"> Determine the slope of a line using change in y over change in x 	
	<ul style="list-style-type: none"> Determine the slope of a line using an equation 	
Students will analyze and solve real-world application problems involving powers, squares, square roots, scientific notation, where numbers, decimals, fractions, percents, integers, rational and irrational numbers, and verify solutions.		
M.O.8.1.1	analyze, describe and compare the characteristics of rational and irrational numbers.	DOK 2

	<ul style="list-style-type: none"> • Know definitions of rational numbers. 	Knowledge
	<ul style="list-style-type: none"> • Know definitions of irrational numbers. 	Knowledge
	<ul style="list-style-type: none"> • Analyze characteristics of rational numbers. 	Reasoning
	<ul style="list-style-type: none"> • Analyze characteristics of irrational numbers. 	Reasoning
	<ul style="list-style-type: none"> • Describe characteristics of rational numbers. 	Reasoning
	<ul style="list-style-type: none"> • Describe characteristics of irrational numbers. 	Reasoning
	<ul style="list-style-type: none"> • Compare characteristics of rational numbers. 	Reasoning
	<ul style="list-style-type: none"> • Compare characteristics of irrational numbers. 	Reasoning
M.O.8.1.2	<p>analyze and solve application problems with</p> <ul style="list-style-type: none"> • powers, • squares, • square roots, • scientific notation, and <p>verify solutions using estimation techniques.</p>	DOK 2
	<ul style="list-style-type: none"> • Know definition of powers. 	Knowledge
	<ul style="list-style-type: none"> • Know definition of squares. 	Knowledge
	<ul style="list-style-type: none"> • Know definition of square roots. 	Knowledge
	<ul style="list-style-type: none"> • Know definition of scientific notation. 	Knowledge
	<ul style="list-style-type: none"> • Solve application problems involving powers. 	Performance
	<ul style="list-style-type: none"> • Solve application problems involving squares. 	Performance
	<ul style="list-style-type: none"> • Solve application problems involving square roots. 	Performance

	<ul style="list-style-type: none"> Solve application problems involving scientific notation. 	Performance
	<ul style="list-style-type: none"> Analyze application problems involving powers. 	Reasoning
	<ul style="list-style-type: none"> Analyze application problems involving squares. 	Reasoning
	<ul style="list-style-type: none"> Analyze application problems involving square roots. 	Reasoning
	<ul style="list-style-type: none"> Analyze application problems involving scientific notation. 	Reasoning
	<ul style="list-style-type: none"> Using estimation techniques, verify solutions to application problems involving powers. 	Reasoning
	<ul style="list-style-type: none"> Using estimation techniques, verify solutions to application problems involving squares. 	Reasoning
	<ul style="list-style-type: none"> Using estimation techniques 	Reasoning
	<ul style="list-style-type: none"> Using estimation techniques 	Reasoning
M.O.8.1.3	<p>analyze and solve grade-appropriate real-world problems with</p> <ul style="list-style-type: none"> whole numbers, decimals, fractions, percents, percent increase and decrease, integers, and <p>including, but not limited to, rates, tips, discounts, sales tax and interest and verify solutions using estimation techniques.</p>	DOK 3
	<ul style="list-style-type: none"> Know definition of whole numbers. 	Knowledge
	<ul style="list-style-type: none"> Know definition of decimals. 	Knowledge
	<ul style="list-style-type: none"> Know definition of fractions. 	Knowledge

	<ul style="list-style-type: none"> • Know definition of percents. 	Knowledge
	<ul style="list-style-type: none"> • Know definition of percent increase. 	Knowledge
	<ul style="list-style-type: none"> • Know definition of percent decrease. 	Knowledge
	<ul style="list-style-type: none"> • Know definition of integers. 	Knowledge
	<ul style="list-style-type: none"> • Solve grade-appropriate real-world problems with whole numbers. 	Performance
	<ul style="list-style-type: none"> • Solve grade-appropriate real-world problems with decimals. 	Performance
	<ul style="list-style-type: none"> • Solve grade-appropriate real-world problems with fractions. 	Performance
	<ul style="list-style-type: none"> • Solve grade-appropriate real-world problems with percents. 	Performance
	<ul style="list-style-type: none"> • Solve grade-appropriate real-world problems with percent increase. 	Performance
	<ul style="list-style-type: none"> • Solve grade-appropriate real-world problems with percent decrease 	Performance
	<ul style="list-style-type: none"> • Solve grade-appropriate real-world problems with integers. 	Performance
	<ul style="list-style-type: none"> • Analyze grade-appropriate real-world problems with whole numbers. 	Reasoning
	<ul style="list-style-type: none"> • Analyze grade-appropriate real-world problems with decimals. 	Reasoning
	<ul style="list-style-type: none"> • Analyze grade-appropriate real-world problems with fractions. • Analyze grade-appropriate real-world problems with percents. 	Reasoning
	<ul style="list-style-type: none"> • Analyze grade-appropriate real-world problems with percent increase. 	Reasoning

	<ul style="list-style-type: none"> Analyze grade-appropriate real-world problems with percent decrease. 	Reasoning
	<ul style="list-style-type: none"> Analyze grade-appropriate real-world problems with integers. 	Reasoning
	<ul style="list-style-type: none"> Using estimation techniques, verify solutions to grade-appropriate real-world problems with whole numbers. 	Reasoning
	<ul style="list-style-type: none"> Using estimation techniques, verify solutions to grade-appropriate real-world problems with decimals. 	Reasoning
	<ul style="list-style-type: none"> Using estimation techniques, verify solutions to grade-appropriate real-world problems with fractions. 	Reasoning
	<ul style="list-style-type: none"> Using estimation techniques, verify solutions to grade-appropriate real-world problems with percents. 	Reasoning
	<ul style="list-style-type: none"> Using estimation techniques, verify solutions to grade-appropriate real-world problems with percent increase. 	Reasoning
	<ul style="list-style-type: none"> Using estimation techniques, verify solutions to grade-appropriate real-world problems with percent decrease. 	Reasoning
	<ul style="list-style-type: none"> Using estimation techniques, verify solutions to grade-appropriate real-world problems with integers. 	Reasoning
M.O.8.3.6	<p>make and test a conjecture concerning</p> <ul style="list-style-type: none"> regular polygons, the cross section of a solid such as a cylinder, cone, and pyramid, the intersection of two or more geometric figures in the plane (e.g., intersection of a circle and a line), and <p>justify the results.</p>	DOK 3

	<ul style="list-style-type: none"> • Know what a conjecture is 	
	<ul style="list-style-type: none"> • Know definition of regular polygon 	
	<ul style="list-style-type: none"> • Know definition of cross section 	
	<ul style="list-style-type: none"> • Know definition of solids 	
	<ul style="list-style-type: none"> • Know definition of a plane 	
	<ul style="list-style-type: none"> • Make a conjecture concerning regular polygons 	
	<ul style="list-style-type: none"> • Test a conjecture concerning regular polygons 	
	<ul style="list-style-type: none"> • Make a conjecture concerning the cross section of a solid 	
	<ul style="list-style-type: none"> • Test a conjecture concerning the cross section of a solid 	
	<ul style="list-style-type: none"> • Make a conjecture concerning the intersection of two or more geometric figures in the plane 	
	<ul style="list-style-type: none"> • Test a conjecture concerning the intersection of two or more geometric figures in the plane 	
	<ul style="list-style-type: none"> • Justify the results of a conjecture concerning regular polygons 	
	<ul style="list-style-type: none"> • Justify the results of a conjecture concerning the cross section of a solid 	
	<ul style="list-style-type: none"> • Justify the results of a conjecture concerning the intersection of two or more geometric figures in a plane 	
M.O.8.2.4	use systems of linear equations to analyze situations and solve problems.	DOK 2
	<ul style="list-style-type: none"> • Know definition/form of linear equations 	
	<ul style="list-style-type: none"> • Use systems of linear equations to analyze situations 	
	<ul style="list-style-type: none"> • Use systems of linear equations to solve problems 	
M.O.8.5.2	compare the experimental and theoretical probability of a given situation (including compound probability of a dependent and independent event).	DOK 2
	<ul style="list-style-type: none"> • Know definition of experimental probability 	
	<ul style="list-style-type: none"> • Know definition of theoretical probability 	
	<ul style="list-style-type: none"> • Know definition of compound probability 	
	<ul style="list-style-type: none"> • Know definition of dependent events 	
	<ul style="list-style-type: none"> • Know definition of independent events 	
	<ul style="list-style-type: none"> • Compare the experimental and theoretical probability of a given situation including 	

	dependent events	
	<ul style="list-style-type: none"> • Compare the experimental and theoretical probability of a given situation including independent events 	
	<ul style="list-style-type: none"> • Compare the experimental and theoretical probability of a given situation including compound probability of dependent events 	
	<ul style="list-style-type: none"> • Compare the experimental and theoretical probability of a given situation including compound probability of independent events 	
M.O.8.1.1	analyze, describe and compare the characteristics of rational and irrational numbers.	DOK 2
	<ul style="list-style-type: none"> • Analyze rational numbers 	
	<ul style="list-style-type: none"> • Analyze irrational numbers 	
	<ul style="list-style-type: none"> • Describe rational numbers 	
	<ul style="list-style-type: none"> • Describe irrational numbers 	
	<ul style="list-style-type: none"> • Compare characteristics of rational and irrational numbers 	
M.O.8.1.2	analyze and solve application problems with <ul style="list-style-type: none"> • powers, • squares, • square roots, • scientific notation, and verify solutions using estimation techniques.	DOK 2
	<ul style="list-style-type: none"> • Analyze problems with powers 	
	<ul style="list-style-type: none"> • Analyze problems with squares 	
	<ul style="list-style-type: none"> • Analyze problems with square roots 	
	<ul style="list-style-type: none"> • Analyze problems with scientific notation 	
	<ul style="list-style-type: none"> • Solve application problems with powers 	
	<ul style="list-style-type: none"> • Solve application problems with squares 	
	<ul style="list-style-type: none"> • Solve application problems with square roots 	
	<ul style="list-style-type: none"> • Solve application problems with scientific notation 	
	<ul style="list-style-type: none"> • Verify solutions of powers using estimation techniques 	
	<ul style="list-style-type: none"> • Verify solutions of squares using estimation techniques 	
	<ul style="list-style-type: none"> • Verify solutions of square roots using 	

	estimation techniques	
	<ul style="list-style-type: none"> • Verify solutions of scientific notation using estimation techniques 	
M.O.8.1.3	<p>analyze and solve grade-appropriate real-world problems with</p> <ul style="list-style-type: none"> • whole numbers, • decimals, • fractions, • percents, percent increase and decrease, • integers, and <p>including, but not limited to, rates, tips, discounts, sales tax and interest and verify solutions using estimation techniques.</p>	DOK 3
	<ul style="list-style-type: none"> • Analyze grade-appropriate real world problems with whole numbers 	
	<ul style="list-style-type: none"> • Analyze grade-appropriate real world problems with decimals 	
	<ul style="list-style-type: none"> • Analyze grade-appropriate real world problems with fractions 	
	<ul style="list-style-type: none"> • Analyze grade-appropriate real world problems with percents 	
	<ul style="list-style-type: none"> • Analyze grade-appropriate real world problems with percent increase 	
	<ul style="list-style-type: none"> • Analyze grade-appropriate real world problems with percent decrease 	
	<ul style="list-style-type: none"> • Analyze grade-appropriate real world problems with integers 	
	<ul style="list-style-type: none"> • Solve grade-appropriate real world problems with whole numbers 	
	<ul style="list-style-type: none"> • Solve grade-appropriate real world problems with decimals 	
	<ul style="list-style-type: none"> • Solve grade-appropriate real world problems with fractions 	
	<ul style="list-style-type: none"> • Solve grade-appropriate real world problems with percents 	
	<ul style="list-style-type: none"> • Solve grade-appropriate real world problems with percent increase 	
	<ul style="list-style-type: none"> • Solve grade-appropriate real world problems with percent decrease 	
	<ul style="list-style-type: none"> • Solve grade-appropriate real world problems with integers 	
	<ul style="list-style-type: none"> • Analyze problems involving rates 	

	<ul style="list-style-type: none"> Analyze problems involving tips 	
	<ul style="list-style-type: none"> Analyze problems involving discounts 	
	<ul style="list-style-type: none"> Analyze problems involving sales tax 	
	<ul style="list-style-type: none"> Analyze problems involving interest 	
	<ul style="list-style-type: none"> Solve problems involving rates 	
	<ul style="list-style-type: none"> Solve problems involving tips 	
	<ul style="list-style-type: none"> Solve problems involving discounts 	
	<ul style="list-style-type: none"> Solve problems involving sales tax 	
	<ul style="list-style-type: none"> Solve problems involving interest 	
	<ul style="list-style-type: none"> Verify solutions of grade-appropriate real world problems with whole numbers using estimation techniques 	
	<ul style="list-style-type: none"> Verify solutions of grade-appropriate real world problems with decimals using estimation techniques 	
	<ul style="list-style-type: none"> Verify solutions of grade-appropriate real world problems with fractions using estimation techniques 	
	<ul style="list-style-type: none"> Verify solutions of grade-appropriate real world problems with percents using estimation techniques 	
	<ul style="list-style-type: none"> Verify solutions of grade-appropriate real world problems with percent increase using estimation techniques 	
	<ul style="list-style-type: none"> Verify solutions of grade-appropriate real world problems with percent decrease using estimation techniques 	
	<ul style="list-style-type: none"> Verify solutions of grade-appropriate real world problems with integers using estimation techniques 	
	<ul style="list-style-type: none"> Verify solutions of problems involving rates using estimation techniques 	
	<ul style="list-style-type: none"> Verify solutions of problems involving tips using estimation techniques 	
	<ul style="list-style-type: none"> Verify solutions of problems involving discounts using estimation techniques 	
	<ul style="list-style-type: none"> Verify solutions of problems involving sales tax using estimation techniques 	
	<ul style="list-style-type: none"> Verify solutions of problems involving interest using estimation techniques 	
M.O.8.2.1	use a variety of strategies to solve one and two-step linear equations and inequalities with rational solutions; defend the selection of the strategy;	DOK 2

	graph the solutions and justify the reasonableness of the solution.	
	<ul style="list-style-type: none"> • Use a variety of strategies to solve one step linear equations with rational solutions 	
	<ul style="list-style-type: none"> • Use a variety of strategies to solve two step linear equations with rational solutions 	
	<ul style="list-style-type: none"> • Use a variety of strategies to solve one step linear inequalities with rational solutions 	
	<ul style="list-style-type: none"> • Use a variety of strategies to solve two step linear inequalities with rational solutions 	
	<ul style="list-style-type: none"> • Defend a chosen strategy for solving one step linear equations with rational solutions 	
	<ul style="list-style-type: none"> • Defend a chosen strategy for solving two step linear equations with rational solutions 	
	<ul style="list-style-type: none"> • Defend a chosen strategy for solving one step linear inequalities with rational solutions 	
	<ul style="list-style-type: none"> • Defend a chosen strategy for solving two step linear inequalities with rational solutions 	
	<ul style="list-style-type: none"> • Graph solutions of one step linear equations with rational solutions 	
	<ul style="list-style-type: none"> • Graph solutions of two step linear equations with rational solutions 	
	<ul style="list-style-type: none"> • Graph solutions of one step linear inequalities with rational solutions 	
	<ul style="list-style-type: none"> • Graph solutions of two step linear inequalities with rational solutions 	
	<ul style="list-style-type: none"> • Justify the reasonableness of solutions of one step linear equations with rational solutions 	
	<ul style="list-style-type: none"> • Justify the reasonableness of solutions of two step linear equations with rational solutions 	
	<ul style="list-style-type: none"> • Justify the reasonableness of solutions of one step linear inequalities with rational solutions 	
	Justify the reasonableness of solutions of two step linear inequalities with rational solutions	
M.O.8.2.9	represent and solve real-world grade-appropriate problems using multiple strategies and justify solutions.	DOK 3

	<ul style="list-style-type: none"> • Represent real 	
	<ul style="list-style-type: none"> • Solve real 	
	<ul style="list-style-type: none"> • Justify solutions of real 	
M.O.8.3.3	identify, apply, and construct perpendicular and angle bisectors with and without technology) given a real-world situation.	DOK 1
	<ul style="list-style-type: none"> • Know definition of perpendicular bisectors 	
	<ul style="list-style-type: none"> • Know definition of angle bisectors 	
	<ul style="list-style-type: none"> • Identify perpendicular bisectors with technology given a real world situation 	
	<ul style="list-style-type: none"> • Identify perpendicular bisectors without technology given a real world situation 	
	<ul style="list-style-type: none"> • Apply perpendicular bisectors with technology given a real world situation 	
	<ul style="list-style-type: none"> • Apply perpendicular bisectors without technology given a real world situation 	
	<ul style="list-style-type: none"> • Construct perpendicular bisectors with technology given a real world situation 	
	<ul style="list-style-type: none"> • Construct perpendicular bisectors without technology given a real world situation 	
	<ul style="list-style-type: none"> • Identify angle bisectors with technology given a real world situation 	
	<ul style="list-style-type: none"> • Identify angle bisectors without technology given a real world situation 	
	<ul style="list-style-type: none"> • Apply angle bisectors with technology given a real world situation 	
	<ul style="list-style-type: none"> • Apply angle bisectors without technology given a real world situation 	
	<ul style="list-style-type: none"> • Construct angle bisectors with technology given a real world situation 	
	<ul style="list-style-type: none"> • Construct angle bisectors without technology given a real world situation 	
M.O.8.3.4	create geometric patterns including tiling, art design, tessellations and scaling using transformations (rotations, reflections, translations) and predict results of combining, subdividing, and changing shapes of plane figures and solids.	DOK 3
	<ul style="list-style-type: none"> • Know definition of tessellations 	
	<ul style="list-style-type: none"> • Know definition of tiling 	
	<ul style="list-style-type: none"> • Know definition of scaling 	

	<ul style="list-style-type: none"> • Know definition of rotations 	
	<ul style="list-style-type: none"> • Know definition of reflections 	
	<ul style="list-style-type: none"> • Know definition of translations 	
	<ul style="list-style-type: none"> • Know definition of transformation 	
	<ul style="list-style-type: none"> • Know definition of plane figures 	
	<ul style="list-style-type: none"> • Know definition of solids 	
	<ul style="list-style-type: none"> • Create geometric patterns including tiling using rotations 	
	<ul style="list-style-type: none"> • Create geometric patterns including art design using rotations 	
	<ul style="list-style-type: none"> • Create geometric patterns including tessellations using rotations 	
	<ul style="list-style-type: none"> • Create geometric patterns including scaling using rotations 	
	<ul style="list-style-type: none"> • Create geometric patterns including tiling using reflections 	
	<ul style="list-style-type: none"> • Create geometric patterns including art design using reflections 	
	<ul style="list-style-type: none"> • Create geometric patterns including tessellations using reflections 	
	<ul style="list-style-type: none"> • Create geometric patterns including scaling using reflections 	
	<ul style="list-style-type: none"> • Create geometric patterns including tiling using translations 	
	<ul style="list-style-type: none"> • Create geometric patterns including art design using translations 	
	<ul style="list-style-type: none"> • Create geometric patterns including tessellations using translations 	
	<ul style="list-style-type: none"> • Create geometric patterns including scaling using translations 	
	<ul style="list-style-type: none"> • Predict results of combining shapes of plane figures 	
	<ul style="list-style-type: none"> • Predict results of subdividing shapes of plane figures 	
	<ul style="list-style-type: none"> • Predict results of changing shapes of plane figures 	
	<ul style="list-style-type: none"> • Predict results of combining shapes of solids 	
	<ul style="list-style-type: none"> • Predict results of subdividing shapes of solids 	
	<ul style="list-style-type: none"> • Predict results of changing shapes of solids 	