

Grade 7
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code SPI 0706.5.4
Grade/Course Level Expectation
Checks for Understanding

State Performance Indicators Use theoretical probability to make predictions.

Detail

General Skill(s)
 7,C,41: Problem Solving
 7,C,53: Logic Problems

Skill Tree(s)
 18LG: Math Word Problems: Advanced
 77MC: Percent Concepts 7-8
 150SB: Math Strategies 7-8

Grade 8
Subject Mathematics
Standard Mathematical Processes
Code GLE 0806.1.1
Grade/Course Level Expectation Use mathematical language, symbols, and definitions while developing mathematical reasoning.
Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
 8,C,42: Adding Decimals
 8,C,43: Adding Fractions
 8,C,44: Subtracting Decimals
 8,C,45: Subtracting Fractions
 8,C,46: Multiplying Decimals
 8,C,47: Multiplying Fractions
 8,C,48: Dividing Decimals
 8,C,49: Dividing Fractions

Skill Tree(s)
 18LG: Math Word Problems: Advanced
 92SB_B: Decimals: Beginning
 186MC: Decimal Concepts 7-8
 150SB: Math Strategies 7-8
 185MC: Fraction Concepts 7-8
 92SB_A: Decimals: Advanced
 9SB: Fractions: Advanced

Grade	8	General Skill(s)
Subject	Mathematics	8,C,4: Rounding
Standard	Mathematical Processes	8,C,38: Problem Solving: Predicting Outcomes
Code	GLE 0806.1.2	8,C,41: Determining Reasonable Solutions
Grade/Course Level Expectation	Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.	8,C,54: Estimation II
Checks for Understanding		Skill Tree(s)
State Performance Indicators		150SB: Math Strategies 7-8
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,4: Rounding
Standard	Mathematical Processes	8,C,38: Problem Solving: Predicting Outcomes
Code	GLE 0806.1.3	8,C,41: Determining Reasonable Solutions
Grade/Course Level Expectation	Develop independent reasoning to communicate mathematical ideas and derive algorithms and/or formulas.	8,C,54: Estimation II
Checks for Understanding		Skill Tree(s)
State Performance Indicators		150SB: Math Strategies 7-8
Detail		

Grade 8
Subject Mathematics
Standard Mathematical Processes
Code GLE 0806.1.4
Grade/Course Level Expectation Move flexibly between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies.

Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
8,C,4: Rounding
8,C,38: Problem Solving: Predicting Outcomes
8,C,41: Determining Reasonable Solutions
8,C,54: Estimation II

Skill Tree(s)
150SB: Math Strategies 7-8

Grade 8
Subject Mathematics
Standard Mathematical Processes
Code GLE 0806.1.5
Grade/Course Level Expectation Use mathematical ideas and processes in different settings to formulate patterns, analyze graphs, set up and solve problems and interpret solutions.

Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
8,C,38: Problem Solving: Predicting Outcomes
8,C,125: Collecting & Representing Data*

Skill Tree(s)
150SB: Math Strategies 7-8
182MC_A: Data Management Concepts 7-8

Grade 8
Subject Mathematics
Standard Mathematical Processes
Code GLE 0806.1.6
Grade/Course Level Expectation Read and interpret the language of mathematics and use written/oral communication to express mathematical ideas precisely.

Checks for Understanding

State Performance Indicators

Detail

General Skill(s)

This specific standard is either not effectively assessed or taught using technology, or is not addressed in this version of Orchard through content or assessments at this grade level.

Skill Tree(s)

Orchard Skill Trees are not currently correlated to this specific standard. See above for details.

Grade 8
Subject Mathematics
Standard Mathematical Processes
Code GLE 0806.1.7
Grade/Course Level Expectation Recognize the historical development of mathematics, mathematics in context, and the connections between mathematics and the real world.

Checks for Understanding

State Performance Indicators

Detail

General Skill(s)

This specific standard is either not effectively assessed or taught using technology, or is not addressed in this version of Orchard through content or assessments at this grade level.

Skill Tree(s)

Orchard Skill Trees are not currently correlated to this specific standard. See above for details.

Grade	8	General Skill(s)	
Subject	Mathematics		This specific standard is either not effectively assessed or taught using technology, or is not addressed in this version of Orchard through content or assessments at this grade level.
Standard	Mathematical Processes		
Code	GLE 0806.1.8		
Grade/Course Level Expectation	Use technologies/manipulatives appropriately to develop understanding of mathematical algorithms, to facilitate problem solving, and to create accurate and reliable models of mathematical concepts.	Skill Tree(s)	Orchard Skill Trees are not currently correlated to this specific standard. See above for details.
Checks for Understanding			
State Performance Indicators			
Detail			

Grade	8	General Skill(s)	
Subject	Mathematics		8,C,116: Function Tables*
Standard	Mathematical Processes	Skill Tree(s)	
Code	0806.1.1		74MC: Patterning and Algebra Concepts 7-8 76MC: Graphing Concepts 188MC: Functional, Geometric, and Stat. Relationships
Grade/Course Level Expectation			
Checks for Understanding	Relate nonlinear functions to geometric contexts of length, area, and volume.		
State Performance Indicators			
Detail			

Grade	8	General Skill(s)
Subject	Mathematics	8,C,116: Function Tables*
Standard	Mathematical Processes	Skill Tree(s)
Code	0806.1.2	74MC: Patterning and Algebra Concepts 7-8
Grade/Course Level Expectation		76MC: Graphing Concepts
Checks for Understanding	Draw qualitative graphs (trend graphs) of functions and describe their general shape/trend.	188MC: Functional, Geometric, and Stat. Relationships
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,15: Geometry: Right Triangles
Standard	Mathematical Processes	Skill Tree(s)
Code	0806.1.3	75MC: Geometry Concepts 7-8
Grade/Course Level Expectation		150SB: Math Strategies 7-8
Checks for Understanding	Research the contributions of Pythagoras to mathematics.	184MC: Measurement Concepts 7-8
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,125: Collecting & Representing Data*
Standard	Mathematical Processes	Skill Tree(s)
Code	0806.1.4	182MC_A: Data Management Concepts 7-8
Grade/Course Level Expectation		
Checks for Understanding	Relate data concepts to relevant concepts in the earth and space, life, and physical sciences.	
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,38: Problem Solving: Predicting Outcomes
Standard	Mathematical Processes	Skill Tree(s)
Code	0806.1.5	150SB: Math Strategies 7-8
Grade/Course Level Expectation		
Checks for Understanding	Use age-appropriate books, stories, and videos to convey ideas of mathematics.	
State Performance Indicators		
Detail		

Grade	8	General Skill(s)	
Subject	Mathematics	8,C,15: Geometry: Right Triangles	
Standard	Mathematical Processes	Skill Tree(s)	
Code	0806.1.6	75MC: Geometry Concepts 7-8	
Grade/Course Level Expectation		150SB: Math Strategies 7-8	
Checks for Understanding	Use models (such as dynamic geometry software, patty paper and geo boards) to explore relationships among angles (complementary, supplementary, interior, exterior, vertical, and corresponding).	184MC: Measurement Concepts 7-8	
State Performance Indicators			
Detail			

Grade	8	General Skill(s)	
Subject	Mathematics	This specific standard is either not effectively assessed or taught using technology, or is not addressed in this version of Orchard through content or assessments at this grade level.	
Standard	Mathematical Processes	Skill Tree(s)	
Code	0806.1.7	Orchard Skill Trees are not currently correlated to this specific standard. See above for details.	
Grade/Course Level Expectation			
Checks for Understanding	Use a graphing calculator or spreadsheet to create scatterplots of data and approximate lines of best fit.		
State Performance Indicators			
Detail			

Grade	8	General Skill(s)
Subject	Mathematics	8,C,52: Multi-Step Word Problems
Standard	Mathematical Processes	Skill Tree(s)
Code	0806.1.8	18LG: Math Word Problems: Advanced 150SB: Math Strategies 7-8
Grade/Course Level Expectation		
Checks for Understanding	Use a variety of methods to solve real-world problems involving multi-step linear equations (e.g., manipulatives, technology, pencil and paper).	
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,35: Problem Solving: Measurement
Standard	Mathematical Processes	Skill Tree(s)
Code	SPI 0806.1.1	150SB: Math Strategies 7-8
Grade/Course Level Expectation		
Checks for Understanding		
State Performance Indicators	Solve problems involving rate/time/distance (i.e., $d = rt$).	
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,40: Interpreting Graphs
Standard	Mathematical Processes	Skill Tree(s)
Code	SPI 0806.1.2	150SB: Math Strategies 7-8 182MC_A: Data Management Concepts
Grade/Course Level Expectation		
Checks for Understanding		
State Performance Indicators	Interpret a qualitative graph representing a contextual situation.	
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,132: Rate*
Standard	Mathematical Processes	Skill Tree(s)
Code	SPI 0806.1.3	183MC: Rate, Ratio, and Proportion Concepts 7-8
Grade/Course Level Expectation		
Checks for Understanding		
State Performance Indicators	Calculates rates involving cost per unit to determine the best buy.	
Detail		

Grade 8
Subject Mathematics
Standard Number & Operations
Code GLE 0806.2.1
Grade/Course Level Expectation Extend understanding of the real number system to include irrational numbers.
Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
8,C,1: Using Scientific Notation
8,C,2: Using Exponential Notation
8,C,10: Exponents
8,C,59: Square Roots
Skill Tree(s)
74MC: Patterning and Algebra Concepts 7-8
150SB: Math Strategies 7-8
185MC: Fraction Concepts 7-8
186MC: Decimal Concepts 7-8

Grade 8
Subject Mathematics
Standard Number & Operations
Code GLE 0806.2.2
Grade/Course Level Expectation Solve problems involving exponents and scientific notation using technology appropriately.
Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
8,C,12: Solving Equations
8,C,59: Square Roots
Skill Tree(s)
74MC: Patterning and Algebra Concepts 7-8
150SB: Math Strategies 7-8
185MC: Fraction Concepts 7-8

Grade 8
Subject Mathematics
Standard Number & Operations
Code GLE 0806.2.3
Grade/Course Level Expectation Solve real-world problems using rational and irrational numbers.
Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
8,C,1: Using Scientific Notation
8,C,2: Using Exponential Notation
8,C,10: Exponents
8,C,12: Solving Equations
8,C,59: Square Roots
Skill Tree(s)
74MC: Patterning and Algebra Concepts 7-8
150SB: Math Strategies 7-8
185MC: Fraction Concepts 7-8
186MC: Decimal Concepts 7-8

Grade 8
Subject Mathematics
Standard Number & Operations
Code GLE 0806.2.4
Grade/Course Level Expectation Understand and use the laws of exponents.
Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
8,C,2: Using Exponential Notation
8,C,10: Exponents
Skill Tree(s)
74MC: Patterning and Algebra Concepts 7-8
150SB: Math Strategies 7-8
185MC: Fraction Concepts 7-8
186MC: Decimal Concepts 7-8

Grade 8
Subject Mathematics
Standard Number & Operations
Code 0806.2.1
Grade/Course Level Expectation
Checks for Understanding Recognize and use exponential, scientific, and calculator notation.

General Skill(s)
8,C,1: Using Scientific Notation
8,C,2: Using Exponential Notation
8,C,10: Exponents
Skill Tree(s)
74MC: Patterning and Algebra Concepts 7-8
150SB: Math Strategies 7-8
185MC: Fraction Concepts 7-8
186MC: Decimal Concepts 7-8

State Performance Indicators

Detail

Grade 8
Subject Mathematics
Standard Number & Operations
Code 0806.2.2
Grade/Course Level Expectation
Checks for Understanding Square numbers and simplify square roots.

General Skill(s)
8,C,59: Square Roots
Skill Tree(s)
150SB: Math Strategies 7-8
185MC: Fraction Concepts 7-8

State Performance Indicators

Detail

Grade 8
Subject Mathematics
Standard Number & Operations
Code 0806.2.3
Grade/Course Level Expectation
Checks for Understanding Solve contextual problems involving powers and roots.

General Skill(s)
8,C,12: Solving Equations
8,C,59: Square Roots
Skill Tree(s)
74MC: Patterning and Algebra Concepts 7-8
150SB: Math Strategies 7-8
185MC: Fraction Concepts 7-8

State Performance Indicators

Detail

Grade 8
Subject Mathematics
Standard Number & Operations
Code 0806.2.4
Grade/Course Level Expectation
Checks for Understanding Use a Venn diagram to represent the subsets of the real number system.

General Skill(s)
8,C,102: Understanding Rational Numbers*
8,C,125: Collecting & Representing Data*
Skill Tree(s)
182MC_A: Data Management Concepts 7-8
187MC: Algebraic Foundations

State Performance Indicators

Detail

Grade	8	General Skill(s)
Subject	Mathematics	8,C,102: Understanding Rational Numbers*
Standard	Number & Operations	Skill Tree(s)
Code	0806.2.5	187MC: Algebraic Foundations
Grade/Course Level Expectation		
Checks for Understanding	Identify the subset(s) of the real number system to which a number belongs.	
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,6: Algebraic Expressions 8,C,11: Evaluating Variables & Expressions
Standard	Number & Operations	Skill Tree(s)
Code	0806.2.6	74MC: Patterning and Algebra Concepts 7-8 150SB: Math Strategies 7-8
Grade/Course Level Expectation		
Checks for Understanding	Simplify expressions using the laws of exponents.	
State Performance Indicators		
Detail		

Grade 8
Subject Mathematics
Standard Number & Operations
Code 0806.2.7
Grade/Course Level Expectation
Checks for Understanding Add, subtract, multiply, and divide numbers expressed scientific notation.

General Skill(s)
8,C,1: Using Scientific Notation
Skill Tree(s)
150SB: Math Strategies 7-8
186MC: Decimal Concepts 7-8

State Performance Indicators

Detail

Grade 8
Subject Mathematics
Standard Number & Operations
Code SPI 0806.2.1
Grade/Course Level Expectation
Checks for Understanding
State Performance Indicators Order and compare rational and irrational numbers and locate on the number line.

General Skill(s)
8,C,3: Compare & Order Rational Numbers
8,C,102: Understanding Rational Numbers*
Skill Tree(s)
78MC: Whole Numbers and Integer Concepts 7-8
150SB: Math Strategies 7-8
187MC: Algebraic Foundations

Detail

Grade	8	General Skill(s)
Subject	Mathematics	8,C,59: Square Roots 8,C,102: Understanding Rational Numbers*
Standard	Number & Operations	
Code	SPI 0806.2.2	Skill Tree(s)
Grade/Course Level Expectation		150SB: Math Strategies 7-8 185MC: Fraction Concepts 7-8 187MC: Algebraic Foundations
Checks for Understanding		
State Performance Indicators	Identify numbers and square roots as rational or irrational.	
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,1: Using Scientific Notation
Standard	Number & Operations	
Code	SPI 0806.2.3	Skill Tree(s)
Grade/Course Level Expectation		150SB: Math Strategies 7-8 186MC: Decimal Concepts 7-8
Checks for Understanding		
State Performance Indicators	Use scientific notation to compute products and quotients.	
Detail		

Grade 8
Subject Mathematics
Standard Number & Operations
Code SPI 0806.2.4
Grade/Course Level Expectation
Checks for Understanding

State Performance Indicators Solve real-world problems requiring scientific notation.

Detail

General Skill(s)
8,C,1: Using Scientific Notation

Skill Tree(s)
150SB: Math Strategies 7-8
186MC: Decimal Concepts 7-8

Grade 8
Subject Mathematics
Standard Algebra
Code GLE 0806.3.1
Grade/Course Level Expectation Recognize and generate equivalent forms for algebraic expressions.
Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
8,C,6: Algebraic Expressions
8,C,11: Evaluating Variables & Expressions

Skill Tree(s)
74MC: Patterning and Algebra Concepts 7-8
150SB: Math Strategies 7-8

Grade 8
Subject Mathematics
Standard Algebra
Code GLE 0806.3.2
Grade/Course Level Expectation Represent, analyze, and solve problems involving linear equations and inequalities in one and two variables.

Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
 8,C,109: Graphing Constant & Linear Equations*
 8,C,110: Coordinate Planes & Ordered Pairs*
Skill Tree(s)
 74MC: Patterning and Algebra Concepts 7-8
 75MC: Geometry Concepts 7-8
 76MC: Graphing Concepts
 187MC: Algebraic Foundations
 188MC: Functional, Geometric, and Stat. Relationships
 189MC: Linear Relations

Grade 8
Subject Mathematics
Standard Algebra
Code GLE 0806.3.3
Grade/Course Level Expectation Solve systems of linear equations in two variables.

Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
 8,C,6: Algebraic Expressions
 8,C,11: Evaluating Variables & Expressions
 8,C,109: Graphing Constant & Linear Equations*
 8,C,110: Coordinate Planes & Ordered Pairs*
Skill Tree(s)
 74MC: Patterning and Algebra Concepts 7-8
 75MC: Geometry Concepts 7-8
 76MC: Graphing Concepts
 150SB: Math Strategies 7-8
 187MC: Algebraic Foundations
 188MC: Functional, Geometric, and Stat. Relationships
 189MC: Linear Relations

Grade	8	General Skill(s)
Subject	Mathematics	8,C,6: Algebraic Expressions
Standard	Algebra	8,C,11: Evaluating Variables & Expressions
Code	GLE 0806.3.4	8,C,109: Graphing Constant & Linear Equations*
Grade/Course Level Expectation	Translate among verbal, tabular, graphical and algebraic representations of linear functions.	8,C,110: Coordinate Planes & Ordered Pairs*
Checks for Understanding		Skill Tree(s)
State Performance Indicators		74MC: Patterning and Algebra Concepts 7-8
Detail		75MC: Geometry Concepts 7-8
		76MC: Graphing Concepts
		150SB: Math Strategies 7-8
		187MC: Algebraic Foundations
		188MC: Functional, Geometric, and Stat. Relationships
		189MC: Linear Relations

Grade	8	General Skill(s)
Subject	Mathematics	8,C,110: Coordinate Planes & Ordered Pairs*
Standard	Algebra	8,C,112: Slope, x- and y-intercepts*
Code	GLE 0806.3.5	8,C,114: Patterns*
Grade/Course Level Expectation	Use slope to analyze situations and solve problems.	8,C,116: Function Tables*
Checks for Understanding		Skill Tree(s)
State Performance Indicators		74MC: Patterning and Algebra Concepts 7-8
Detail		75MC: Geometry Concepts 7-8
		76MC: Graphing Concepts
		188MC: Functional, Geometric, and Stat. Relationships
		189MC: Linear Relations
		190MC: Quadratic Relations

Grade	8	General Skill(s)
Subject	Mathematics	8,C,109: Graphing Constant & Linear Equations* 8,C,110: Coordinate Planes & Ordered Pairs*
Standard	Algebra	
Code	GLE 0806.3.6	Skill Tree(s)
Grade/Course Level Expectation	Compare and contrast linear and nonlinear functions.	74MC: Patterning and Algebra Concepts 7-8 75MC: Geometry Concepts 7-8 76MC: Graphing Concepts 187MC: Algebraic Foundations 188MC: Functional, Geometric, and Stat. Relationships 189MC: Linear Relations
Checks for Understanding		
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,6: Algebraic Expressions 8,C,11: Evaluating Variables & Expressions
Standard	Algebra	
Code	0806.3.1	Skill Tree(s)
Grade/Course Level Expectation		74MC: Patterning and Algebra Concepts 7-8 150SB: Math Strategies 7-8
Checks for Understanding	Perform basic operations on algebraic expressions (including grouping, order of operations, exponents, square/cube roots, simplifying and expanding).	
State Performance Indicators		
Detail		

Grade 8
Subject Mathematics
Standard Algebra
Code 0806.3.2
Grade/Course Level Expectation
Checks for Understanding Represent algebraic relationships with equations and inequalities.

General Skill(s)
8,C,6: Algebraic Expressions
8,C,39: Inequalities
Skill Tree(s)
74MC: Patterning and Algebra Concepts 7-8
150SB: Math Strategies 7-8

State Performance Indicators

Detail

Grade 8
Subject Mathematics
Standard Algebra
Code 0806.3.3
Grade/Course Level Expectation
Checks for Understanding Solve systems of linear equations in two variables and relate the systems to pairs of lines that intersect, are parallel, or are the same line.

General Skill(s)
8,C,109: Graphing Constant & Linear Equations*
8,C,110: Coordinate Planes & Ordered Pairs*
Skill Tree(s)
74MC: Patterning and Algebra Concepts 7-8
75MC: Geometry Concepts 7-8
76MC: Graphing Concepts
187MC: Algebraic Foundations
188MC: Functional, Geometric, and Stat. Relationships
189MC: Linear Relations

State Performance Indicators

Detail

Grade	8	General Skill(s)	8,C,109: Graphing Constant & Linear Equations* 8,C,110: Coordinate Planes & Ordered Pairs*
Subject	Mathematics		
Standard	Algebra		
Code	0806.3.4	Skill Tree(s)	74MC: Patterning and Algebra Concepts 7-8 75MC: Geometry Concepts 7-8 76MC: Graphing Concepts 187MC: Algebraic Foundations 188MC: Functional, Geometric, and Stat. Relationships 189MC: Linear Relations
Grade/Course Level Expectation			
Checks for Understanding	Understand the relationship between the graph of a linear inequality and its solutions.		
State Performance Indicators			
Detail			

Grade	8	General Skill(s)	8,C,109: Graphing Constant & Linear Equations* 8,C,110: Coordinate Planes & Ordered Pairs*
Subject	Mathematics		
Standard	Algebra		
Code	0806.3.5	Skill Tree(s)	74MC: Patterning and Algebra Concepts 7-8 75MC: Geometry Concepts 7-8 76MC: Graphing Concepts 187MC: Algebraic Foundations 188MC: Functional, Geometric, and Stat. Relationships 189MC: Linear Relations
Grade/Course Level Expectation			
Checks for Understanding	Solve linear inequalities in two variables (including those whose solutions require multiplication or division by a negative number).		
State Performance Indicators			
Detail			

Grade 8
Subject Mathematics
Standard Algebra
Code 0806.3.6
Grade/Course Level Expectation
Checks for Understanding Identify x- and y-intercepts and slope of linear equations from an equation, graph or table.

General Skill(s)
8,C,109: Graphing Constant & Linear Equation
8,C,112: Slope, x- and y-intercepts*
Skill Tree(s)
74MC: Patterning and Algebra Concepts 7-8
75MC: Geometry Concepts 7-8
76MC: Graphing Concepts
187MC: Algebraic Foundations
188MC: Functional, Geometric, and Stat. Relationships
189MC: Linear Relations

State Performance Indicators

Detail

Grade 8
Subject Mathematics
Standard Algebra
Code 0806.3.7
Grade/Course Level Expectation
Checks for Understanding Analyze situations and solve problems involving constant rate of change.

General Skill(s)
8,C,12: Solving Equations
8,C,52: Multi-Step Word Problems
Skill Tree(s)
74MC: Patterning and Algebra Concepts 7-8
150SB: Math Strategies 7-8
18LG: Math Word Problems: Advanced

State Performance Indicators

Detail

Grade	8	General Skill(s)	8,C,109: Graphing Constant & Linear Equations*
Subject	Mathematics		8,C,111: Constant, Linear, & Nonlinear Relationships*
Standard	Algebra	Skill Tree(s)	74MC: Patterning and Algebra Concepts 7-8
Code	0806.3.8		76MC: Graphing Concepts
Grade/Course Level Expectation			184MC: Measurement Concepts 7-8
Checks for Understanding	Recognize a proportion as a special case of a linear equation and understand that the constant of proportionality is the slope, and the resulting graph is a line through the origin.		187MC: Algebraic Foundations
			188MC: Functional, Geometric, and Stat. Relationships
			189MC: Linear Relations
			190MC: Quadratic Relations
State Performance Indicators			
Detail			

Grade	8	General Skill(s)	8,C,110: Coordinate Planes & Ordered Pairs*
Subject	Mathematics		8,C,112: Slope, x- and y-intercepts*
Standard	Algebra	Skill Tree(s)	8,C,114: Patterns*
Code	0806.3.9		8,C,116: Function Tables*
Grade/Course Level Expectation			74MC: Patterning and Algebra Concepts 7-8
Checks for Understanding	Given a function rule, create tables of values for x and y, and plot graphs of nonlinear functions.		75MC: Geometry Concepts 7-8
			76MC: Graphing Concepts
			188MC: Functional, Geometric, and Stat. Relationships
			189MC: Linear Relations
			190MC: Quadratic Relations
State Performance Indicators			
Detail			

Grade	8	General Skill(s)	8,C,110: Coordinate Planes & Ordered Pairs*
Subject	Mathematics		
Standard	Algebra	Skill Tree(s)	74MC: Patterning and Algebra Concepts 7-8 75MC: Geometry Concepts 7-8 76MC: Graphing Concepts 188MC: Functional, Geometric, and Stat. Relationships 189MC: Linear Relations
Code	0806.3.10		
Grade/Course Level Expectation			
Checks for Understanding	Distinguish quadratic and exponential functions as nonlinear using a graph and/or a table of values.		
State Performance Indicators			
Detail			

Grade	8	General Skill(s)	8,C,110: Coordinate Planes & Ordered Pairs* 8,C,111: Constant, Linear, & Nonlinear Relationships*
Subject	Mathematics		
Standard	Algebra	Skill Tree(s)	74MC: Patterning and Algebra Concepts 7-8 75MC: Geometry Concepts 7-8 76MC: Graphing Concepts 184MC: Measurement Concepts 7-8 187MC: Algebraic Foundations 188MC: Functional, Geometric, and Stat. Relationships 189MC: Linear Relations 190MC: Quadratic Relations
Code	0806.3.11		
Grade/Course Level Expectation			
Checks for Understanding	Distinguish between the equations of linear, quadratic, and exponential functions (e.g. function families such as $y=x^2$, $y=2x$, and $y=2x^2$).		
State Performance Indicators			
Detail			

Grade	8	General Skill(s)
Subject	Mathematics	8,C,116: Function Tables*
Standard	Algebra	Skill Tree(s)
Code	0806.3.12	74MC: Patterning and Algebra Concepts 7-8
Grade/Course Level Expectation		76MC: Graphing Concepts
Checks for Understanding	Understand how rates of change of nonlinear functions contrast with constant rates of change of linear functions.	188MC: Functional, Geometric, and Stat. Relationships
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,125: Collecting & Representing Data*
Standard	Algebra	Skill Tree(s)
Code	0806.3.13	182MC_A: Data Management Concepts 7-8
Grade/Course Level Expectation		
Checks for Understanding	Represent situations and solve real-world problems using symbolic algebra.	
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,109: Graphing Constant & Linear Equations*
Standard	Algebra	8,C,111: Constant, Linear, & Nonlinear Relationships*
Code	SPI 0806.3.1	Skill Tree(s)
Grade/Course Level Expectation		74MC: Patterning and Algebra Concepts 7-8
Checks for Understanding		76MC: Graphing Concepts
		184MC: Measurement Concepts 7-8
		187MC: Algebraic Foundations
		188MC: Functional, Geometric, and Stat. Relationships
		189MC: Linear Relations
		190MC: Quadratic Relations
State Performance Indicators	Find solutions to systems of two linear equations in two variables.	
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,109: Graphing Constant & Linear Equations*
Standard	Algebra	8,C,111: Constant, Linear, & Nonlinear Relationships*
Code	SPI 0806.3.2	Skill Tree(s)
Grade/Course Level Expectation		74MC: Patterning and Algebra Concepts 7-8
Checks for Understanding		76MC: Graphing Concepts
		184MC: Measurement Concepts 7-8
		187MC: Algebraic Foundations
		188MC: Functional, Geometric, and Stat. Relationships
		189MC: Linear Relations
		190MC: Quadratic Relations
State Performance Indicators	Solve the linear equation $f(x) = g(x)$.	
Detail		

Grade	8	General Skill(s)	8,C,109: Graphing Constant & Linear Equations* 8,C,111: Constant, Linear, & Nonlinear Relationships*
Subject	Mathematics		
Standard	Algebra		
Code	SPI 0806.3.3	Skill Tree(s)	74MC: Patterning and Algebra Concepts 7-8 76MC: Graphing Concepts 184MC: Measurement Concepts 7-8 187MC: Algebraic Foundations 188MC: Functional, Geometric, and Stat. Relationships 189MC: Linear Relations 190MC: Quadratic Relations
Grade/Course Level Expectation			
Checks for Understanding			
State Performance Indicators	Solve and graph linear inequalities in two variables.		
Detail			

Grade	8	General Skill(s)	This specific standard is either not effectively assessed or taught using technology, or is not addressed in this version of Orchard through content or assessments at this grade level.
Subject	Mathematics		
Standard	Algebra		
Code	SPI 0806.3.4	Skill Tree(s)	Orchard Skill Trees are not currently correlated to this specific standard. See above for details.
Grade/Course Level Expectation			
Checks for Understanding			
State Performance Indicators	Translate between various representations of a linear function.		
Detail			

Grade	8	General Skill(s)
Subject	Mathematics	8,C,112: Slope, x- and y-intercepts*
Standard	Algebra	Skill Tree(s)
Code	SPI 0806.3.5	76MC: Graphing Concepts
Grade/Course Level Expectation		189MC: Linear Relations
Checks for Understanding		190MC: Quadratic Relations
State Performance Indicators	Determine the slope of a line from an equation, two given points, a table or a graph.	
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,112: Slope, x- and y-intercepts*
Standard	Algebra	Skill Tree(s)
Code	SPI 0806.3.6	76MC: Graphing Concepts
Grade/Course Level Expectation		189MC: Linear Relations
Checks for Understanding		190MC: Quadratic Relations
State Performance Indicators	Analyze the graph of a linear function to find solutions and intercepts.	
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,111: Constant, Linear, & Nonlinear Relationships* 8,C,116: Function Tables*
Standard	Algebra	
Code	SPI 0806.3.7	Skill Tree(s)
Grade/Course Level Expectation		74MC: Patterning and Algebra Concepts 7-8 76MC: Graphing Concepts 184MC: Measurement Concepts 7-8 187MC: Algebraic Foundations 188MC: Functional, Geometric, and Stat. Relationships 189MC: Linear Relations 190MC: Quadratic Relations
Checks for Understanding		
State Performance Indicators	Identify, compare and contrast functions as linear or nonlinear.	
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,15: Geometry: Right Triangles
Standard	Geometry & Measurement	
Code	GLE 0806.4.1	Skill Tree(s)
Grade/Course Level Expectation	Derive the Pythagorean theorem and understand its applications.	75MC: Geometry Concepts 7-8 150SB: Math Strategies 7-8 184MC: Measurement Concepts 7-8
Checks for Understanding		
State Performance Indicators		
Detail		

Grade 8
Subject Mathematics
Standard Geometry & Measurement
Code GLE 0806.4.2
Grade/Course Level Expectation Understand the relationships among the angles formed by parallel lines cut by transversals.
Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
8,C,13: Geometry: Basic Concepts
8,C,17: Geometry & Figure Construction

Skill Tree(s)
75MC: Geometry Concepts 7-8
150SB: Math Strategies 7-8

Grade 8
Subject Mathematics
Standard Geometry & Measurement
Code GLE 0806.4.3
Grade/Course Level Expectation Understand the necessary levels of accuracy and precision in measurement.
Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
8,C,23: Measurement Precision

Skill Tree(s)
150SB: Math Strategies 7-8

Grade 8
Subject Mathematics
Standard Geometry & Measurement
Code GLE 0806.4.4
Grade/Course Level Expectation Understand both metric and customary units of measurement.
Checks for Understanding

General Skill(s)
8,C,18: Metric & Customary Measurement
8,C,19: Metric Conversions
Skill Tree(s)
150SB: Math Strategies 7-8

State Performance Indicators

Detail

Grade 8
Subject Mathematics
Standard Geometry & Measurement
Code GLE 0806.4.5
Grade/Course Level Expectation Use visualization to describe or identify intersections, cross-sections, and various views of geometric figures.
Checks for Understanding

General Skill(s)
8,C,13: Geometry: Basic Concepts
8,C,17: Geometry & Figure Construction
Skill Tree(s)
75MC: Geometry Concepts 7-8
150SB: Math Strategies 7-8

State Performance Indicators

Detail

Grade	8	General Skill(s)
Subject	Mathematics	8,C,15: Geometry: Right Triangles
Standard	Geometry & Measurement	Skill Tree(s)
Code	0806.4.1	75MC: Geometry Concepts 7-8
Grade/Course Level Expectation		150SB: Math Strategies 7-8
Checks for Understanding	Model the Pythagorean Theorem.	184MC: Measurement Concepts 7-8
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,15: Geometry: Right Triangles
Standard	Geometry & Measurement	Skill Tree(s)
Code	0806.4.2	75MC: Geometry Concepts 7-8
Grade/Course Level Expectation		150SB: Math Strategies 7-8
Checks for Understanding	Use the converse of the Pythagorean Theorem to determine if a triangle is a right triangle.	184MC: Measurement Concepts 7-8
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,17: Geometry & Figure Construction
Standard	Geometry & Measurement	Skill Tree(s)
Code	0806.4.3	150SB: Math Strategies 7-8
Grade/Course Level Expectation		
Checks for Understanding	Select or use the appropriate measurement instrument to determine or create a given length, area, volume, angle, weight, or mass.	
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,23: Measurement Precision
Standard	Geometry & Measurement	Skill Tree(s)
Code	0806.4.4	150SB: Math Strategies 7-8
Grade/Course Level Expectation		
Checks for Understanding	Understand how the precision of measurement influences accuracy of quantities derived from these measurements.	
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,13: Geometry: Basic Concepts 8,C,17: Geometry & Figure Construction
Standard	Geometry & Measurement	
Code	0806.4.5	Skill Tree(s)
Grade/Course Level Expectation		75MC: Geometry Concepts 7-8 150SB: Math Strategies 7-8
Checks for Understanding	Analyze the congruent and supplementary relationships of angles formed by parallel lines and transversals (such as alternate interior, alternate exterior, corresponding, and adjacent).	
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,20: Customary Conversions
Standard	Geometry & Measurement	
Code	0806.4.6	Skill Tree(s)
Grade/Course Level Expectation		150SB: Math Strategies 7-8
Checks for Understanding	Make within-system and between-system conversions of derived quantities including distance, temperature, and money.	
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,14: Geometry: 2D & 3D Figures
Standard	Geometry & Measurement	Skill Tree(s)
Code	0806.4.7	75MC: Geometry Concepts 7-8
Grade/Course Level Expectation		
Checks for Understanding	Visualize or describe the cross-section resulting from the intersection of a plane with a 3-dimensional figure.	
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,14: Geometry: 2D & 3D Figures
Standard	Geometry & Measurement	Skill Tree(s)
Code	0806.4.8	75MC: Geometry Concepts 7-8
Grade/Course Level Expectation		
Checks for Understanding	Build, draw, and work with 2- and 3-dimensional figures by means of orthogonal views, projective views, and/or nets.	
State Performance Indicators		
Detail		

Grade 8
Subject Mathematics
Standard Geometry & Measurement
Code SPI 0806.4.1
Grade/Course Level Expectation
Checks for Understanding

State Performance Indicators Use the Pythagorean Theorem to solve contextual problems.

Detail

General Skill(s)
8,C,15: Geometry: Right Triangles

Skill Tree(s)
75MC: Geometry Concepts 7-8
150SB: Math Strategies 7-8
184MC: Measurement Concepts 7-8

Grade 8
Subject Mathematics
Standard Geometry & Measurement
Code SPI 0806.4.2
Grade/Course Level Expectation
Checks for Understanding

State Performance Indicators Apply the Pythagorean theorem to find distances between points in the coordinate plane to measure lengths and analyze polygons and polyhedra.

Detail

General Skill(s)
8,C,15: Geometry: Right Triangles

Skill Tree(s)
75MC: Geometry Concepts 7-8
150SB: Math Strategies 7-8
184MC: Measurement Concepts 7-8

Grade	8	General Skill(s)
Subject	Mathematics	8,C,13: Geometry: Basic Concepts 8,C,14: Geometry: 2D & 3D Figures
Standard	Geometry & Measurement	
Code	SPI 0806.4.3	Skill Tree(s)
Grade/Course Level Expectation		75MC: Geometry Concepts 7-8
Checks for Understanding		
State Performance Indicators	Find measures of the angles formed by parallel lines cut by a transversal.	
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,18: Metric & Customary Measurement 8,C,19: Metric Conversions
Standard	Geometry & Measurement	
Code	SPI 0806.4.4	Skill Tree(s)
Grade/Course Level Expectation		150SB: Math Strategies 7-8
Checks for Understanding		
State Performance Indicators	Convert between and within the U.S. Customary System and the metric system.	
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,13: Geometry: Basic Concepts 8,C,14: Geometry: 2D & 3D Figures
Standard	Geometry & Measurement	
Code	SPI 0806.4.5	Skill Tree(s)
Grade/Course Level Expectation		75MC: Geometry Concepts 7-8
Checks for Understanding		
State Performance Indicators	Identify the intersection of two or more geometric figures in the plane.	
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,124: Probability Models & Concepts*
Standard	Data Analysis, Statistics, & Probability	
Code	GLE 0806.5.1	Skill Tree(s)
Grade/Course Level Expectation	Explore probabilities for compound, independent and/or dependent events.	182MC_B: Probability Concepts 7-8
Checks for Understanding		
State Performance Indicators		
Detail		

Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code GLE 0806.5.2
Grade/Course Level Expectation Select, create, and use appropriate graphical representations of data (including scatterplots with lines of best fit) to make and test conjectures.

Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
8,C,37: Probability & Statistics
8,C,40: Interpreting Graphs
8,C,57: Logic Problems

Skill Tree(s)
150SB: Math Strategies 7-8
182MC_B: Probability Concepts 7-8

Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code GLE 0806.5.3
Grade/Course Level Expectation Evaluate the use of statistics in media reports.

Checks for Understanding

State Performance Indicators

Detail

General Skill(s)
8,C,37: Probability & Statistics
8,C,40: Interpreting Graphs
8,C,57: Logic Problems

Skill Tree(s)
150SB: Math Strategies 7-8
182MC_B: Probability Concepts 7-8

Orchard Correlation to the Tennessee Curriculum Standards



Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code 0806.5.1

General Skill(s)
8,C,38: Problem Solving: Predicting Outcomes

Skill Tree(s)
150SB: Math Strategies 7-8

**Grade/Course
Level
Expectation**

**Checks
for
Understanding** Solve simple problems involving probability and relative frequency.

**State
Performance
Indicators**

Detail

Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code 0806.5.2

General Skill(s)
8,C,124: Probability Models & Concepts*

Skill Tree(s)
182MC_B: Probability Concepts 7-8

**Grade/Course
Level
Expectation**

**Checks
for
Understanding** Compare probabilities of two or more events and recognize when certain events are equally likely.

**State
Performance
Indicators**

Detail

Grade	8	General Skill(s)
Subject	Mathematics	8,C,124: Probability Models & Concepts*
Standard	Data Analysis, Statistics, & Probability	Skill Tree(s)
Code	0806.5.3	182MC_B: Probability Concepts 7-8
Grade/Course Level Expectation		
Checks for Understanding	Recognize common misconceptions associated with dependent and independent events.	
State Performance Indicators		
Detail		

Grade	8	General Skill(s)
Subject	Mathematics	8,C,125: Collecting & Representing Data*
Standard	Data Analysis, Statistics, & Probability	Skill Tree(s)
Code	0806.5.4	182MC_A: Data Management Concepts 7-8
Grade/Course Level Expectation		
Checks for Understanding	Explain the benefits and the limitations of various representations (i.e., bar graphs, line graphs, circle graphs, histograms, stem-and-leaf plots, box plots, scatterplots) of data.	
State Performance Indicators		
Detail		

Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code 0806.5.5
Grade/Course Level Expectation
Checks for Understanding Create and interpret box-and-whisker plots and scatterplots.

General Skill(s)
8,C,125: Collecting & Representing Data*
Skill Tree(s)
182MC_A: Data Management Concepts 7-8

State Performance Indicators

Detail

Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code 0806.5.6
Grade/Course Level Expectation
Checks for Understanding Use observations about differences between two or more samples to make conjectures about the populations from which the samples were taken.

General Skill(s)
8,C,37: Probability & Statistics
8,C,40: Interpreting Graphs
8,C,57: Logic Problems
Skill Tree(s)
150SB: Math Strategies 7-8
182MC_B: Probability Concepts 7-8

State Performance Indicators

Detail

Orchard Correlation to the Tennessee Curriculum Standards



Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code 0806.5.7
Grade/Course Level Expectation
Checks for Understanding Estimate lines of best fit to make and test conjectures.

General Skill(s)
8,C,37: Probability & Statistics
8,C,40: Interpreting Graphs
8,C,57: Logic Problems
Skill Tree(s)
150SB: Math Strategies 7-8
182MC_B: Probability Concepts 7-8

State Performance Indicators

Detail

Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code 0806.5.8
Grade/Course Level Expectation
Checks for Understanding Consider the source, design, analysis, and display of data to evaluate statistics reported in the media.

General Skill(s)
This specific standard is either not effectively assessed or taught using technology, or is not addressed in this version of Orchard through content or assessments at this grade level.
Skill Tree(s)
Orchard Skill Trees are not currently correlated to this specific standard. See above for details.

State Performance Indicators

Detail

Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code SPI 0806.5.1
Grade/Course Level Expectation
Checks for Understanding

State Performance Indicators Calculate probabilities of events for simple experiments with equally probable outcomes.

Detail

General Skill(s)
8,C,37: Probability & Statistics
8,C,38: Problem Solving: Predicting Outcomes

Skill Tree(s)
150SB: Math Strategies 7-8
182MC_B: Probability Concepts 7-8

Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code SPI 0806.5.2
Grade/Course Level Expectation
Checks for Understanding

State Performance Indicators Use a variety of methods to compute probabilities for compound events (e.g., multiplication, organized lists, tree diagrams, area models).

Detail

General Skill(s)
8,C,37: Probability & Statistics
8,C,40: Interpreting Graphs
8,C,57: Logic Problems

Skill Tree(s)
150SB: Math Strategies 7-8
182MC_B: Probability Concepts 7-8

Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code SPI 0806.5.3

**Grade/Course
Level
Expectation**

**Checks
for
Understanding**

**State
Performance
Indicators** Generalize the relationship between two sets of data
using scatterplots and lines of best fit.

Detail

General Skill(s)
8,C,37: Probability & Statistics
8,C,40: Interpreting Graphs
8,C,57: Logic Problems

Skill Tree(s)
150SB: Math Strategies 7-8
182MC_B: Probability Concepts 7-8

Grade 8
Subject Mathematics
Standard Data Analysis, Statistics, & Probability
Code SPI 0806.5.4

**Grade/Course
Level
Expectation**

**Checks
for
Understanding**

**State
Performance
Indicators** Recognize misrepresentations of published data in
the media.

Detail

General Skill(s)
This specific standard is either not effectively assessed
or taught using technology, or is not addressed in this
version of Orchard through content or assessments at
this grade level.

Skill Tree(s)
Orchard Skill Trees are not currently correlated to this
specific standard. See above for details.