

Scope and Sequence

- Math K–4
- Intermediate 3–5
- Courses 1–3

SAXON MATH™

Courses 1–3

Scope and Sequence

The Scope and Sequence for the *Saxon Courses 1–3* mathematics series is intended to help educators view the progression of mathematical topics throughout the series. Topics are grouped into nine strands:

1. Numbers and Operations
2. Algebra
3. Geometry
4. Measurement
5. Data Analysis and Probability
6. Problem Solving
7. Communication
8. Mathematical Reasoning
9. Connections

The locators in the Scope and Sequence identify lessons in which direct instruction of a topic is presented. Once a topic is presented, students are continually exposed to the topic in the daily problem sets that follow. Because of space considerations, the daily problem sets are not referenced in the Scope and Sequence. Consequently, student exposure to individual topics is actually stronger than indicated on the following pages.

SAXON MATH™

SCOPE AND SEQUENCE

The locators in this Scope and Sequence indicate where direct instruction on each topic can be found. Locators refer to lesson and investigation numbers.

	Course 1	Course 2	Course 3
Numbers and Operations			
Numeration			
Uses digits	12, 21		
Reads and writes whole numbers and decimals	35, 46	1, 5, 31	12
Understands place value to trillions	12	5	12
Understands place value to hundred trillions		5	12
Uses a number line (integers, fractions)	9, 14, 17, 100	4, 8, 29, 34, 59, 64, 68	1, 10
Uses a number line (rational and irrational numbers)		78, 86	15, 31, 36
Reads and writes numbers in expanded notation	32, 46, 92	4	
Uses comparison symbols ($=$, $<$, $>$)	9	4, 33	1, 77, 94
Uses comparison symbols ($=$, $<$, $>$, \leq , \geq)		4, 78, 93	62, 77, 94
Compares and orders rational numbers	9, 14, 44, 76	33, 86	1, 5, 10
Compares and orders real numbers		100	16
Reads and writes numbers in scientific notation		51, 57, 69, 83, 111	28, 51, 57
Basic operations			
Addition			
Adds integers	3, 5, 10, 100	1, 2	2, 31
Adds decimal numbers	1, 37	1	24
Adds fractions and mixed numbers	24, 26, 59, 61	9	13
Adds algebraic terms			31
Adds polynomials			80
Adds radical expressions			96
Solves addition problems with regrouping	1	2	2, 13, 31
Subtraction			
Subtracts integers	3, 5, 100	1, 2	2, 33
Subtracts decimal numbers	1, 37	1	25
Subtracts fractions and mixed numbers	24, 26, 36	9, 23	13
Subtracts algebraic terms			31
Subtracts polynomials			80
Solves subtraction problems with regrouping	1, 36, 48, 63	23	13, 31, 33
Multiplication			
Multiplies integers	2, 5, 10, 112	1, 2	2, 36
Multiplies decimal numbers	39, 46	1	25, 46
Multiplies fractions and mixed numbers	29, 66, 70	9, 26	22, 23

	Course 1	Course 2	Course 3
Numbers and Operations, continued			
Basic Operations, continued			
Multiplication, continued			
Multiplies algebraic terms			15, 21, 27, 36
Multiplies radical expressions			96, 120
Multiplies binomials			92
Solves multiplication problems with regrouping	2	2	2
Understands multiplication notations: $a \times b$, $a \cdot b$, $a(b)$	2	1	
Division			
Understands division notations: division box, division sign, and division bar	2	1	
Divides integers	5, 112	1, 2	2, 36
Solves division problems with remainders	2, 11	10, 42, 44	
Divides decimal numbers	45	1	25, 46
Divides fractions and mixed numbers	50, 54, 68	25, 26	22, 23
Divides algebraic terms			27, 36
Properties of numbers and operation			
Identifies even and odd integers	10, 19	4	1
Identifies factors	2, 19, 21	6, 118	9
Identifies multiples	25		
Understands divisibility	21	6	9
Identifies prime and composite numbers	19	21	9
Finds the greatest common factor (GCF)	20	6, 21, 24	9, 10
Finds the least common multiple (LCM)	30	27, 30	13
Uses divisibility tests (2, 3, 5, 9, 10)	21	6	9
Uses divisibility tests (4, 6, 8)		6	9
Finds the prime factorization of whole numbers	65, 73	21, 24, 30, 103, 115	9, 10, 15
Uses positive exponents with whole numbers, decimals, fractions	73, 92	20, 83	15, 27, 46
Uses positive exponents with integers		47, 103	27, 36, 46
Uses negative exponents with whole numbers		57	51, 57
Uses negative exponents with rational numbers			51, 57, 68
Finds square roots	38	20, 100, 103, 106	15, 36, 74
Finds cube roots		106	15
Follows the order of operations	5, 84, 92	2, 52, 63, 85	31, 33
Uses inverse operations	1, 2, 4, 87, 106	2, 9, 106	38
Estimation			
Rounds whole numbers, decimals, mixed numbers	16, 51	29, 33	17, 117
Estimates sums, differences, products, quotients	16	29	17
Estimates squares and square roots	89	29, 100	16, 118
Determines the reasonableness of a solution		29	17
Finds approximate irrational numbers		29, 100	16; Investigation 2

	Course 1	Course 2	Course 3
Algebra			
Ratio and proportional reasoning			
Finds a fractional part of a whole, group, set, or number	6, 22, 77, 117	8, 14, 22, 60, 71, 74	
Writes equivalent fractions	26, 29, 55, 56	15, 24, 27, 48	
Converts between fractions, terminating decimals, and percents	33, 35, 73, 74, 75, 99	8, 43, 48; Investigation 1	11, 12, 71, 119
Converts between fractions, repeating decimals, and percents		43, 48	30, 63, 71, 110
Finds the reciprocals of numbers	30, 50	9, 25	22
Simplifies complex fractions involving one term in numerator/denominator		25, 76	119
Simplifies complex fractions involving two terms in numerator/denominator			119
Finds a percent of a whole, group, set, or number	94, 105, 119	8, 14, 77	11, 48, 58, 63, 109
Works with percents greater than 100%	94	8	67, 71
Solves percent of change problems		92	67, 71
Solves proportions with an unknown in one term	83, 85, 101	39, 81	34, 35, 45, 87
Finds unit rates and ratios in proportional relationships	88	36, 46, 53	7, 29, 34, 38, 44, 49, 105
Applies proportional relationships such as similarity, scaling, and rates	23, 80; Investigation 11	46, 54, 98	26, 49, 70; Investigation 12
Estimates and solves application problems involving percent	105, 119	81, 110	48, 58, 67, 71; Investigation 10
Estimates and solves application problems involving proportional relationships such as similarity and rate		46, 54, 98	7, 35, 45, 49, 64, 70; Investigation 10
Compares and contrasts proportional and non-proportional linear relationships (direct and inverse variation)			34, 41, 47, 69, 98
Patterns, relations, and functions			
Generates an alternate representation of data		56, 116, 120; Investigation 9	69
Uses, describes, and extends arithmetic sequences (with a constant rate of change)	10	4	61, 73
Completes input/output tables	10, 82, 96	16, 56	41, 47, 97, 99
Analyzes a pattern to verbalize a rule	10, 82, 96	4	61, 73
Analyzes a pattern to write an algebraic expression		56, 87	61, 97
Evaluates an algebraic expression to extend a pattern		4, 56	61, 73, 97
Compares and contrasts linear and nonlinear functions		120	41, 88, 98, 99; Investigations 10, 11
Variables, expressions, equations, and inequalities			
Solves equations using concrete and pictorial models	114, 116	87; Investigation 7	
Formulates a problem situation for a given equation with one unknown variable		11, 12, 13, 14	3

	Course 1	Course 2	Course 3
Algebra, continued			
Variables, expressions, equations, and inequalities, continued			
Formulates an equation with one unknown variable given a problem situation	11, 15, 87, 105	11, 12, 13, 14, 101	3, 4
Formulates an inequality with one unknown variable given a problem situation			62, 77
Solves one-step equations with whole numbers	87	41; Investigation 7	2, 3, 14, 38
Solves two-step equations with whole numbers	106, 116	93, 102, 108, 109	19, 50, 79
Solves one-step equations with fractions and decimals		90; Investigation 7	3, 4, 14, 38
Solves two-step equations with fractions and decimals		93, 108, 110	50, 79
Solves equations with exponents			93
Solves systems of equations with two unknowns by graphing			56, 82, 89
Graphs an inequality on a number line		78, 86	62, 77
Graphs pairs of inequalities on a number line			94
Solves inequalities with one unknown		93	62, 77
Validates an equation solution using mathematical properties		102, 106, 109	19, 90; Investigation 8
Geometry			
Basic terms			
Describes and names points	7	7, 117	18
Describes, identifies, and draws segments	7	7, 117	18
Describes, identifies, and draws rays	7	7, 117	18
Describes, identifies, and draws lines	7	7, 117	18, 44, 54
Describes, identifies, and names angles	28, 69	7, 117	18, 54
Describes planes	28, 69	7, 117	18; Investigation 1
Properties and relationships of lines			
Describes, identifies, and draws parallel, perpendicular, and intersecting lines	28, 71, 97	7, 61, 117	18, 54; Investigation 1
Describes, identifies, and draws horizontal, vertical, and oblique lines	18; Investigation 7	117	44; Investigation 1
Finds and uses the slope of a line		107, 116, 117	44
Properties and relationships of angles			
Describes, identifies, and draws acute, obtuse, and right angles	28; Investigation 3	7, 62	18, 54; Investigation 3
Describes, identifies, and draws straight angles		7	18, 54
Identifies complementary and supplementary angles	69, 71, 97	40	54
Identifies and finds the measures of angles formed by transversals	97	102	54
Constructs an angle bisector	Investigation 8	Investigation 10	
Identifies vertical angles		40	54

	Course 1	Course 2	Course 3
Geometry, continued			
Properties and relationships of angles, continued			
Identifies adjacent angles		40	54
Calculates to find unknown angle measures	71, 97, 98	101, 102	20, 54, 81, 115; Investigation 3
Properties and relationships of polygons			
Identifies and describes regular polygons	2, 60	18	19
Identifies and describes interior and exterior angles	97, 98	61, 89	
Finds and uses the sum of angle measures	98	40	20, 115
Identifies and draws diagonals		89	66, 74
Understands the effects of scaling on area		Investigation 11	8, 26, 71, 91, 108; Investigation 5
Understands the effects of scaling on volume		98; Investigation 11	35, 71, 76, 91, 106, 108
Understands and applies similarity and congruence	68, 79, 108, 109	18, 97	19
Classifies triangles	93	62	20, 35
Classifies quadrilaterals	60, 64; Investigation 6	75; Investigation 6	Investigation 3
Use Pythagorean theorem to solve problems			
Uses the Pythagorean theorem to solve problems involving whole numbers		99, 112	74; Investigation 2
Uses the Pythagorean theorem to solve problems involving radicals			66, 74, 78, 96; Investigation 2
Uses trigonometric ratios			112, 118
3-Dimensional figures			
Represents three-dimensional figures in two-dimensional world using nets	Investigations 6, 12	67; Investigation 12	55, 95, 100
Draws three-dimensional figures	Investigation 6	67	Investigation 4
Coordinate geometry			
Names and graphs ordered pairs	Investigation 7	56; Investigation 3	41, 89; Investigations 1, 5, 11
Identifies intercepts of a line		116	56, 82
Determines slope from the graph of line		116, 117	44, 56, 113; Investigation 8
Identifies reflections, translations, rotations, and symmetry	108	58, 80	26; Investigation 3
Graphs reflections across the horizontal or vertical axes	108	80	26; Investigation 5
Graphs translations		80	Investigation 5
Graphs rotations			Investigation 5
Graphs dilations			60, 71; Investigation 5
Graphs linear equations		56; Investigation 9	41, 47, 56, 82

	Course 1	Course 2	Course 3
Measurement			
Measuring physical attributes			
Uses customary units of length, area, volume, weight, capacity	7, 31, 78, 82, 102	16, 70, 79, 82	6, 31, 42
Uses metric units of length, area, volume, weight, capacity	7, 8, 82	32, 70, 79, 82, 114	6, 8, 42, 104
Uses temperature scales: Fahrenheit, Celsius	10, 32	16, 32	31
Uses units of time	13, 32	49	80
Systems of measurement			
Converts units of measure in the U.S. Customary System	78, 81, 114	16, 49, 50	6, 52, 72
Converts units of measure in the metric system	7, 114	50, 114	6, 104
Converts between systems	7	50	6
Uses unit multipliers	95, 114	50, 88	52, 64, 72
Solving measurement problems			
Finds the perimeter of polygons, circles, and complex figures	8, 47, 60, 71, 103	19, 65	8, 31, 39, 60
Finds the area of triangles, rectangles, and parallelograms	31, 71, 79	20, 37	8, 20, 37, 60, 66, 92, 96
Finds the area of trapezoids		75	75
Finds the area of circles	86	82	40, 101, 114
Finds the area of semicircles and sectors		104	40
Finds the area of complex figures	107	75	37
Finds the surface area of right prisms and cylinders	Investigation 12	105	43, 44, 85
Finds the surface area of spheres		105	111
Finds the surface area of cones and pyramids			100, 114
Estimates area	86, 118	79	37, 40, 43; Investigation 1
Finds the volume of right prisms, cylinders, pyramids, and cones	120; Investigation 12	95, 113, 117, 119	42, 76, 104, 117
Find the volume of spheres		113, 119	111
Estimates volume	78	117, 119	42, 76, 104, 117
Solving problems of similarity			
Solves problems involving scale factors	83; Investigation 11	98; Investigation 11	26, 35, 87, 91
Solves problems involving similar triangles		97	35, 115; Investigation 12
Solves problems involving indirect measurement		97	65, 118
Solves problems involving scale drawings: two-dimensional	Investigation 11	98	35, 60
Solves problems involving scale drawings: three-dimensional			91

	Course 1	Course 2	Course 3
Measurement, continued			
Use appropriate measurement instruments			
Uses rulers (U.S. Customary and metric)	7, 17	8; Investigation 10	
Uses a compass	27; Investigation 8	Investigations 2, 10	39
Uses a protractor	Investigation 3	17, 96	18
Uses a thermometer	10, 100	32	
Data Analysis and Probability			
Data collection and representation			
Collects and displays data	Investigations 1, 4, 5	38; Investigation 5	53; Investigation 6
Makes and interprets tables and charts	Investigation 5	110; Investigation 9	Investigations 8, 11
Makes and interprets frequency tables	Investigations 1, 9	38	Investigation 6
Makes and interprets pictographs	Investigation 5	38	
Makes and interprets line graphs	18	38; Investigation 5	
Makes and interprets histograms	Investigation 1	Investigation 5	53; Investigation 6
Makes and interprets bar graphs	Investigation 4	38; Investigation 5	53; Investigation 6
Makes and interprets circle graphs	40; Investigation 5	38; Investigation 5	Investigation 6
Makes and interprets Venn diagrams		86	90; Investigation 3
Makes and interprets scatterplots			113; Investigation 8
Makes and interprets line plots	Investigations 4, 5	56	53, 109
Makes and interprets stem-and-leaf plots	Investigation 5	Investigation 4	
Makes and interprets box-and-whisker plots		Investigation 4	103
Chooses an appropriate graph	Investigation 5	38	103; Investigations 6, 9
Identifies bias in data collection		38	Investigation 6
Analyzes bias in data collection			Investigations 6, 9
Draws and compares different representations	40; Investigation 5	38; Investigation 5	16
Data set characteristics			
Finds mean, median, mode, and range	18; Investigation 5	28; Investigation 4	7, 53, 103, 105
Selects the best measure of central tendency for a given situation		77, 79; Investigation 4	7, 53

	Course 1	Course 2	Course 3
Data Analysis and Probability, <i>continued</i>			
Data set characteristics, <i>continued</i>			
Determines trends from data		38	53, 98, 113
Makes predictions from graphs		Investigation 5	98, 113
Recognizes misuses of graphical or numerical information		38; Investigation 5	53
Evaluates predictions and conclusions based on data analysis		38	53
Probability			
Calculates experimental probability	Investigations 9, 10	Investigation 8	32, 59
Makes predictions based on experiments	Investigations 9, 10	Investigation 8	32, 59
Evaluates accuracy of predictions in experiments	Investigation 9	Investigation 8	59
Calculates theoretical probability	Investigation 9	Investigation 8	32, 59, 110
Identifies sample spaces	58	36	32, 68, 83
Calculates simple probability	58, 77; Investigation 9	14	32, 59
Calculates the probability of compound events	Investigation 10	Investigation 8	32, 68
Calculates the probability of the complement of an event	77; Investigation 10	14	32
Calculates the probability of independent events	Investigations 9, 10	94; Investigation 8	32, 83
Calculates the probability of dependent events		94	83
Selects and uses different models to simulate an event			59
Problem Solving			
Problem-solving strategies			
Acts it out or make a model	10, 30, 34	34, 50, 54	1, 6, 11
Draws a picture or diagram	1, 14, 17	14, 17, 20	1, 9, 23
Finds a pattern	1, 4, 11	1, 2, 4	5, 10, 16
Guesses and checks	5, 6, 25	5, 18, 19	8, 12, 35
Makes an organized list	2, 26, 32	8, 26, 27	10, 62, 64
Makes it simpler	4, 12, 31	2, 4, 6	4, 7, 13
Makes or uses a table, chart, or graph	11, 14, 59	18, 21, 38	17, 18, 21
Uses logical reasoning	3, 5, 6	3, 5, 7	12, 15, 17
Works backwards	15, 55, 56	6, 15, 35	2, 14, 30
Writes a number sentence or equation	3, 17, 22	3, 7, 9	3, 31, 32
Communication			
Questions and responds	2, 3, 4	2, 4, 6	12, 13, 14
Works with partners or in groups	Investigations 2, 4, 9	Investigations 1, 3, 8	Investigations 1, 4, 9
Communicates mathematical ideas through objects, words, pictures, numbers, technology, and symbols	1, 2; Investigation 2	5, 7, 8	5, 6, 8
Writes about math	4, 6; Investigation 1	11, 12; Investigation 1	3, 4, 5

	Course 1	Course 2	Course 3
Mathematical Reasoning			
Uses algebraic reasoning	10, 11, 82, 87, 96	4, 11, 16, 41, 56, 87	3, 41, 61, 62, 73, 97
Uses spatial reasoning	28, 60, 64, 71, 97, 108, 109; Investigations 6, 12	7, 18, 40, 67, 75, 80, 99, 102, 117; Investigation 11	18, 19, 26, 44, 54, 55, 60, 71, 74, 91, 108, 112; Investigations 2, 3, 4, 5
Classifies and sorts	60, 64, 93; Investigation 6	7, 18, 62, 67; Investigation 6	19, 20; Investigations 3, 4
Explains an answer	1, 2, 3	2, 4, 5	2, 9, 10
Makes generalizations	1, 2, 9	3, 4, 5	2, 3, 7
Justifies conclusions	13, 19; Investigation 1	1, 2, 3	2, 4, 5
Connections			
Connects math to architecture	61, 98	107, 109; Investigation 11	35, 42; Investigation 3
Connects math to art	63, 67, 112	30, 56, 94	31, 33; Investigation 3
Connects math to geography	14, 16; Investigation 1	13, 18, 20	6, 17, 28
Connects math to history	10, 13, 13	12, 13, 14	3, 7, 14
Connects math to science	7, 10, 11	9, 14, 19	16, 18, 28
Connects math to social studies		28, 29, 62	53
Connects math to sports	4, 7, 8	7, 11, 18	3, 4, 6