NCTM 6th Grade Standards / *Excel* Math Correlation

Standards / Objectives	*Excel* Math Lesson Numbers	Stretch Lesson Numbers Activity Numbers
NUMBER AND OPERATIONS		
Understand numbers, ways of representing numbers, relationships among numbers, and number systems		
• Work flexibly with fractions, decimals, and percents to solve problems;	1, 5, 18, 19, 22, 27, 28, 31, 34, 35, 38, 39, 44, 46, 47, 48, 49, 51, 52, 57, 61, 66, 67, 71, 74, 78, 79, 81, 83, 85, 86, 87, 90, 93, 94, 95, 97, 98, 99, 101, 102, 104, 105, 106, 108, 110, 111, 112, 113, 116, 117, 118, 119, 120, 123, 126, 127, 128, 129, 133, 135, 138, 140, 142, 146, 152, 153	12, 18, 35, 38, 44, 46, 48, 49, 50, 68, 82, 84, 85, 93, 96, 104, 110, 124, 138, 143, 150, 152 Activity 3, 6, 12
• Compare and order fractions, decimals, and percents efficiently and find their approximate locations on a number line;	18, 22, 27, 28, 35, 39, 44, 46, 47, 48, 49, 52, 53, 57, 66, 67, 71, 73, 74, 78, 81, 83, 87, 90, 93, 94, 95, 97, 105, 110, 111, 113, 114, 119, 123, 126, 127, 128, 129	144
• Develop meaning for percents greater than 100 and less than 1;	135	
• Understand and use ratios and proportions to represent quantitative relationships;	*8, 40, 66, 72, 97, 120, 133	*19, 50, 54, 69, 146, 147 Activity 2, 4, 6
• Develop an understanding of large numbers and recognize and appropriately use exponential, scientific, and calculator notation;	1, 16, 24, 35, 54, 58, 61, 77, 95, 107, 134, 136, 147 Powers of 10: 102, 107, 134	76, 141, 142 Activity 12
• Use factors, multiples, prime factorization, and relatively prime numbers to solve problems;	1, 6, 9, 17, 26, 40, 50, 56, 62, 64, 72, 116, 132	72, 88, 90, 92, 99, 139 Activity 12
• Develop meaning for integers and represent and compare quantities with them.	1, 2, 3, 6, 8, 16, 19, 20, 24, 26, 35, 38, 41, 45, 54, 62, 63, 81, 82, 83, 84, 95, 96, 107, 108, 109, 116, 130, 131, 132, 143, 144, 147, 155	1, 3, 20, 23, 29, 32, 34, 36, 62, 66, 67, 72, 75, 81, 86, 88, 98, 113, 117, 132, 133, 139, 140, 142, 144, 153, 155 Activity 12

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Standards / Objectives	*Excel* Math Lesson Numbers	Stretch Lesson Numbers Activity Numbers
Understand meanings of operations and how they relate to one another		
• Understand the meaning and effects of arithmetic operations with fractions, decimals, and integers;	1, 3, 5, 6, 8, 9, 12, 16, 18, 19, 26, 27, 28, 29, 31, 34, 38, 39, 40, 41, 43, 44, 46, 47, 48, 51, 52, 54, 57, 61, 62, 66, 69, 71, 72, 78, 79, 81, 82, 83, 85, 87, 91, 93, 94, 96, 99, 101, 102, 103, 104, 105, 106, 107, 110, 111, 112, 116, 117, 118, 120, 122, 127, 128, 132, 134, 135, 136, 138, 142, 143, 144, 146, 147, 152, 153, 154, 155	1, 2, 3, 6, 7, 12, 16, 17, 18, 20, 25, 31, 32, 35, 37, 38, 42, 44, 46, 47, 48, 49, 50, 54, 60, 62, 65, 66, 67, 68, 69, 70, 72, 75, 76, 78, 79, 81, 82, 83, 85, 86, 87, 91, 93, 96, 98, 101, 102, 103, 104, 110, 113, 115, 117, 123, 124, 125, 126, 128, 130, 132, 133, 138, 140, 141, 142, 143, 150, 151, 154, 155 Activity 12
• Use the associative and commutative properties of addition and multiplication and the distributive property of multiplication over addition to simplify computations with integers, fractions, and decimals;	3, *6, 18, 37, 91, 112, 155	
• Understand and use the inverse relationships of addition and subtraction, multiplication and division, and squaring and finding square roots to simplify computations and solve problems.	6, 16, 26, 31, 38, 52, 62, 72, 77, 81, 82, 103, 114, 132, 136, 138, 140	
Compute fluently and make reasonable estimates		
• Select appropriate methods and tools for computing with fractions and decimals from among mental computation, estimation, calculators or computers, and paper and pencil, depending on the situation, and apply the selected methods;	1, 5, 18, 19, 27, 28, 29, 31, 34, 35, 39, *42, 44, 47, 48, 51, 52, 57, 61, 62, 66, *69, 71, 73, 78, 79, 81, 83, 85, 87, 93, 94, 101, 102, 104, 105, 106, 110, 111, 117, 118, 120, 123, 126, 127, 128, 129, 133, 135, 142, 152, 153	12, 18, 35, 38, 44, 46, 49, 50, 68, 82, 85, 93, 96, 101, 104, 110, 124, 138, 150, 151 Activity 4, 6, 12
• Develop and analyze algorithms for computing with fractions, decimals, and integers and develop fluency in their use;	1, 3, 5, 6, 8, 9, 12, 16, 18, 19, 26, 27, 28, 31, 35, 38, 39, 40, 41, *42, 44, 46, 47, 51, 52, 57, 61, 62, 66, 69, 71, 72, 78, 79, 81, 82, 83, 85, 87, 91, 93, 94, 96, 99, 101, 102, 103, 104, 105, 106, 110, 111, 112, 116, 117, 118, 120, 126, 127, 128, 129, 132, 133, 135, 136, 138, 142, 143, 144, 146, 147, 152, 153, 154, 155	1, 2, 3, 4, 7, 10, 12, 16, 17, 18, 20, 25, 31, 32, 35, 37, 38, 41, 42, 44, 46, 47, 48, 49, 50, 54, 60, 65, 67, 68, 69, 70, 75, 76, 78, 81, 82, 83, 85, 86, 87, 91, 93, 96, 101, 104, 110, 123, 124, 125, 126, 128, 130, 132, 133, 141, 142, 143, 150, 151, 154, 155 Activity 12
• Develop and use strategies to estimate the results of rational-number computations and judge the reasonableness of the results;	3, 8, 9, 20, 26, 42, 48, 49, 58, 61, 62, 69, 72, 86, 108, *122, 132, 134, 147, 154	1, 3, 10, 20, 31, 32, 35, 67, 68, 72, 78, 82, 83, 85, 87, 101, 102, 103, 123, 124, 125, 126, 128, 130, 149

Standards / Objectives	*Excel* Math Lesson Numbers	Stretch Lesson Numbers Activity Numbers
• Develop, analyze, and explain methods for solving problems involving proportions, such as scaling and finding equivalent ratios.	*8, 29, 40, 66, *72, 97, *99, *148 Reciprocals: 101	17, 51, 54, 57, 64, *66, *67, 69, 109, 119, 131 Activity 2, 4, 6
ALGEBRA		
Understand patterns, relations, and functions		
• Represent, analyze, and generalize a variety of patterns with tables, graphs, words, and, when possible, symbolic rules;	3, 8, 18, 21, 26, 32, 33, 36, 40, *45, 65, 68, 69, 72, 73, 74, 84, 100, 115, 149	1, 6, 9, 13, 15, 21, 24, 26, 27, 30, 34, 41, 43, 60, 65, 66, 75, 80, 81, 91, 93, 94, 103, 104, 109, 113, 117, 119, 121, 123, 131, 133, 140, 141, 142, 151, 154, 155 Order: 105, 134, 145
• Relate and compare different forms of representation for a relationship;	2, 3, 6, 8, 18, 36, 40, 45, 48, 57, 65, 72, 74, 83, 89, 94, 96, 97, 100, 101, 102, 107, 114, 115, 116, 120, 150	3, 5, *6, 7, 8, *13, 22, *24, *26, 27, 33, 37, 41, 43, 49, 50, 60, 62, 65, 66, 67, 69, 70, 73, 75, 76, 78, 81, 83, 86, 87, *93, 98, 102, 109, 113, 115, 117, 119, 121, 128, 130, 131, 133, 141, 142, 154, 155 Activity 3, 12
• Identify functions as linear or nonlinear and contrast their properties from tables, graphs, or equations.	*3, *8, *21, *32, *36, 40, *63, 65, 68, *69, *73, *84, 100, *109, *114, 115	*6, *9, *13, *15, *24, *30, *60, *65, *67, *75, *76, *81, *93, *140, 141
Represent and analyze mathematical situations and structures using algebraic symbols		
• Develop an initial conceptual understanding of different uses of variables;	3, 18, 32, 40, 36, 42, 48, 57, 61, 83, 91, 96, 114, 115, 116, 150	3, 5, 8, 10, 22, *26, 27, 31, 73, 75, 78, 81, 83, 86, 87, 96, 102, 110, 113, 117, 124, 128, 130, 133, 141, 142, 155
• Explore relationships between symbolic expressions and graphs of lines, paying particular attention to the meaning of intercept and slope;	*40, 68, 70, *109, 115	*75, *81, *141
• Use symbolic algebra to represent situations and to solve problems, especially those that involve linear relationships;	3, *8, 40, *68, 100, 114, 115	6, 13, *24, 75, *81, 140, 141

Standards / Objectives	*Excel* Math Lesson Numbers	Stretch Lesson Numbers Activity Numbers
• Recognize and generate equivalent forms for simple algebraic expressions and solve linear equations	3, 8, 37, 40, 43, 48, 83, 91, 100, 114, 115, 120	5, *6, 8, 9, 10, 16, 17, 21, 22, *24, *26, 27, 30, 31, 37, 41, 42, 46, 47, 60, 62, 65, 66, 67, 69, 73, 75, 76, 78, 81, 83, 86, 87, 93, 96, 110, 113, 115, 117, 140, 141, 142
Use mathematical models to represent and understand quantitative relationships		
• Model and solve contextualized problems using various representations, such as graphs, tables, and equations.	6, 7, 8, 9, 19, 30, 31, 34, 39, 40, 41, 42, 43, 63, 65, 66, 69, 72, 79, 86, 87, 89, 92, 94, 96, 97, 105, 108, 110, 117, 120, 127, 133, 137, 141, 150, 151, 152, 153	2, 5, 6, 7, 9, 10, 11, 12, 13, 16, 17, 20, 21, 24, 26, 27, 30, 31, 33, 35, 37, 38, 41, 42, 43, 44, 48, 49, 52, 60, 65, 67, 68, 69, 75, 76, 81, 82, 86, 91, 93, 101, 113, 117, 124, 140, 141, 154 Activity 3
Analyze change in various contexts		
• Use graphs to analyze the nature of changes in quantities in linear relationships.	8, 34, 40, 65, 68, 69, 92, 115, 151	*6, *13, 60, *75, 81

Standards / Objectives	*Excel* Math Lesson Numbers	Stretch Lesson Numbers Activity Numbers
GEOMETRY		
Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships		
• Precisely describe, classify, and understand relationships among types of two- and three-dimensional objects using their defining properties;	14, 15, 21, 23, 30, 45, 59, 60, 80, 100, 121, 124, 125, 139, 148	14, 39, 45, 51, 53, 55, 56, 57, 59, 63, 64, 71, 77, 108, 116, 118, 119, 129, 131 Activity 1, 2, 5, 6, 8
• Understand relationships among the angles, side lengths, perimeters, areas, and volumes of similar objects;	14, 15, 23, 21, 25, 30, 33, 59, 80, 121, 124, 139	39, 45, 56, 59, 63, 71, 77, 108, 116, 118, 119, 129 Activity 1, 2, 4, 5
• Create and critique inductive and deductive arguments concerning geometric ideas and relationships, such as congruence, similarity, and the Pythagorean relationship.	23, *30, *45, *121, *124, 148	14, *51, *52, 53, *57, *58, 61, *64, *71, 77, 109, 118, 119, 131 Activity 1, 2, 5, 6, 7, 8
Specify locations and describe spatial relationships using coordinate geometry and other representational systems		
• Use coordinate geometry to represent and examine the properties of geometric shapes;	*32, *36, 68, 76, 145	Activity 3
• Use coordinate geometry to examine special geometric shapes, such as regular polygons or those with pairs of parallel or perpendicular sides.	*14, 76, 145	Activity 3
Apply transformations and use symmetry to analyze mathematical situations		
• Describe sizes, positions, and orientations of shapes under informal transformations such as flips, turns, slides, and scaling;	23, *121, *124	*14, *51, *57, *58, *61, *64, 108, 109, 116, 119, 121, 129, 131 Activity 4, 6, 7, 8
• Examine the congruence, similarity, and line or rotational symmetry of objects using transformations.	23, *121, *124, 148	*53, 61, 109, 119, 121, 131 Activity 2, 5, 6, 7

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Standards / Objectives	*Excel* Math Lesson Numbers	Stretch Lesson Numbers Activity Numbers
Use visualization, spatial reasoning, and geometric modeling to solve problems		
• Draw geometric objects with specified properties, such as side lengths or angle measures;	14, 25, 30, 33, 60, 121, 124	14, 39, *45, 51, 55, 57, 58, 61, *63, 64, *77, *84, 109, 118, 119, 121, 131 Activity 1, 2, 3, 4, 8
• Use two-dimensional representations of three-dimensional objects to visualize and solve problems such as those involving surface area and volume;	30, 59, 100, 108, 124, 139	59, 118 Activity 1, 2, 3, 4, 5
• Use visual tools such as networks to represent and solve problems;	23, 25, *30, 33, 45, 59, 60, *100, 139	48, 51, 52, 57, 58, 64, 84 Activity 2, 3, 8
• Use geometric models to represent and explain numerical and algebraic relationships;	23, 25, 29, 30, *33, 45, 59, 80, 100, 121, 124, 125, 139, 148	39, 52, 55, 84 Activity 1, 2, 3, 4, 6
• Recognize and apply geometric ideas and relationships in areas outside the mathematics classroom, such as art, science, and everyday life.	14, 29, 139, 151 All Create a Problems	39, 51, 55, 57, 58, 143 Activity 1, 2, 3, 4, 6

Standards / Objectives	*Excel* Math Lesson Numbers	Stretch Lesson Numbers Activity Numbers
MEASUREMENT		
Understand measurable attributes of objects and the units, systems, and processes of measurement		
• Understand both metric and customary systems of measurement;	10, 11, 29, 126, 137, 141, 152 Days / Months: 4, 41, 92 Time: 13, 41, 43, 92, 137	74, 84, 89, 111 Days / Months: 21, 60 Time: 120, 137, 148
• Understand relationships among units and convert from one unit to another within the same system;	10, 11, 29, 126, 137, 141	39, 74, 89, 111
• Understand, select, and use units of appropriate size and type to measure angles, perimeter, area, surface area, and volume.	25, 30, *33, 59, 60, 75, 76, 80, 88, 100, 105, 121, 124, 137, 139	28, 55, 56, 59, 63, 77, 89 Activity 2, 3, 4
Apply appropriate techniques, tools, and formulas to determine measurements		
• Use common benchmarks to select appropriate methods for estimating measurements;	10, 11, 25, 29, 75, 121	136 Activity 2, 3
• Select and apply techniques and tools to accurately find length, area, volume, and angle measures to appropriate levels of precision;	11, 25, 30, 33, 59, 60, 75, 76, 80, 88, 108, 121, 137, 139	39, 54, 56, 59, 63, 77, 89 Activity 2, 3
• Develop and use formulas to determine the circumference of circles and the area of triangles, parallelograms, trapezoids, and circles and develop strategies to find the area of more-complex shapes;	30, 60, 75, 76, 121, 124, 125, 148	28, 55, 56, 63 Activity 1, 3, 4
• Develop strategies to determine the surface area and volume of selected prisms, pyramids, and cylinders;	30, 59, 100, 108, 139	59, *136 Activity 2, 4
• Solve problems involving scale factors, using ratio and proportion;	29, *40	*16, 54, *84, 109, 119, 131 Activity 1, 2, 6
• Solve simple problems involving rates and derived measurements for such attributes as velocity and density.	89	Weight: 16, 36, Distance: 6, 48 Activity 13, 14

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DATA ANALYSIS AND PROBABILITY		
Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them		
• Formulate questions, design studies, and collect data about a characteristic shared by two populations or different characteristics within one population;	2, 8, 65, *70, *94	4, 33, 52 Activity 9, 10, 11
• Select, create, and use appropriate graphical representations of data, including histograms, box plots, and scatterplots.	2, 8, 65, *70, *94	4, 11, 33, 52 Activity 9, 10, 11
Select and use appropriate statistical methods to analyze data		
• Find, use, and interpret measures of center and spread, including mean and interquartile range;	2, 20, 55, 65, *70, 110, 120, 138 Intersecting of sets: 45	*33, 47, 52, 138 Activity 10, *11, 14
• Discuss and understand the correspondence between data sets and their graphical representations, especially histograms, stem-and-leaf plots, box plots, and scatterplots.	2, 40, 65, 70, 94	33, 52 Activity 11
Develop and evaluate inferences and predictions that are based on data		
• Use observations about differences between two or more samples to make conjectures about the populations from which the samples were taken;	2, 8, 40, 65, 70	19, 33, 52 Activity 9, 10, 11
• Make conjectures about possible relationships between two characteristics of a sample on the basis of scatterplots of the data and approximate lines of fit;	*2, 8, 40, 65, 70	19, 33, 52 Activity 9, 10, 11
• Use conjectures to formulate new questions and plan new studies to answer them.	*2, 8, 40, 65, 70	19, 33, *52 Activity 9, 11
Understand and apply basic concepts of probability		
• Understand and use appropriate terminology to describe complementary and mutually exclusive events;	*70, *97, *99, 150	Activity *9
• Use proportionality and a basic understanding of probability to make and test conjectures about the results of experiments and simulations;	34, 70, 97, 99, 150	146, 147

Standards / Objectives	*Excel* Math Lesson Numbers	Stretch Lesson Numbers Activity Numbers
• Compute probabilities for simple compound events, using such methods as organized lists, tree diagrams, and area models.	34, 70, 97, *99, 150 Possibilities: 8	146, 147 Possibilities: 19, 34, 40, 17, 79, 80, 97
PROBLEM SOLVING		
Build new mathematical knowledge through problem solving;	1, 6, 7, 8, 9, 13, 19, 20, 29, 31, 33, 39, 40, 41, 42, 43, 63, 69, 70, 72, 79, 86, 87, 89, 92, 94, 96, 97, 105, 110, 117, 127, 133, 137, 141, 151, 153, 154	4, 6, 7, 9, 10, 11, 12, 16, 17, 18, 24, 25, 26, 30, 33, 35, 37, 38, 39, 40, 42, 44, 46, 47, 52, 54, 60, 68, 69, 76, 79, 92, 94, 95, 97, 99, 100, 105, 106, 107, 112, 114, 120, 122, 124, 127, 135, 136, 137, 138, 139, 143, 146, 148, 149, 150, 154
Solve problems that arise in mathematics and in other contexts;	1, 6, 7, 8, 9, 13, 19, 20, 29, 31, 33, 39, 40, 41, 42, 43, 63, 69, 70, 72, 79, 86, 87, 89, 92, 94, 96, 97, 105, 110, 117, 127, 133, 137, 141, 151, 153, 154	4, 6, 7, 9, 10, 11, 12, 16, 17, 18, 24, 25, 26, 30, 33, 35, 37, 38, 39, 40, 42, 44, 46, 47, 52, 54, 60, 68, 69, 76, 79, 92, 94, 95, 97, 99, 100, 105, 106, 107, 112, 114, 120, 122, 124, 127, 135, 136, 137, 138, 139, 143, 146, 148, 149, 150, 154
Apply and adapt a variety of appropriate strategies to solve problems;	1, 6, 7, 8, 9, 13, 19, 20, 29, 31, 33, 39, 40, 41, 42, 43, 63, 69, 70, 72, 79, 86, 87, 89, 92, 94, 96, 97, 105, 110, 117, 127, 133, 137, 141, 151, 153, 154	4, 6, 7, 9, 10, 11, 12, 16, 17, 18, 24, 25, 26, 30, 33, 35, 37, 38, 39, 40, 42, 44, 46, 47, 52, 54, 60, 68, 69, 76, 79, 92, 94, 95, 97, 99, 100, 105, 106, 107, 112, 114, 120, 122, 124, 127, 135, 136, 137, 138, 139, 143, 146, 148, 149, 150, 154
Monitor and reflect on the process of mathematical problem solving.	1, 6, 7, 8, 9, 13, 19, 20, 29, 31, 33, 39, 40, 41, 42, 43, 63, 69, 70, 72, 79, 86, 87, 89, 92, 94, 96, 97, 105, 110, 117, 127, 133, 137, 141, 151, 153, 154	4, 6, 7, 9, 10, 11, 12, 16, 17, 18, 24, 25, 26, 30, 33, 35, 37, 38, 39, 40, 42, 44, 46, 47, 52, 54, 60, 68, 69, 76, 79, 92, 94, 95, 97, 99, 100, 105, 106, 107, 112, 114, 120, 122, 124, 127, 135, 136, 137, 138, 139, 143, 146, 148, 149, 150, 154
REASONING AND PROOF		
Recognize reasoning and proof as fundamental aspects of mathematics;	Applies to all lessons	Applies to all lessons
Make and investigate mathematical conjectures;	Applies to all lessons	Applies to all lessons
Develop and evaluate mathematical arguments and proofs;	Applies to all lessons	Applies to all lessons
Select and use various types of reasoning and methods of proof.	Applies to all lessons	Applies to all lessons

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COMMUNICATIONS		
Organize and consolidate their mathematical thinking through communication;	Applies to all lessons	Applies to all lessons
Communicate their mathematical thinking coherently and clearly to peers, teachers, and others;	Applies to all lessons	Applies to all lessons
Analyze and evaluate the mathematical thinking and strategies of others;	Applies to all lessons	Applies to all lessons
Use the language of mathematics to express mathematical ideas precisely.	Applies to all lessons	Applies to all lessons
CONNECTIONS		
Recognize and use connections among mathematical ideas;	Applies to all lessons	Applies to all lessons
Understand how mathematical ideas interconnect and build on one another to produce a coherent whole;	Applies to all lessons	Applies to all lessons
Recognize and apply mathematics in contexts outside of mathematics.	Applies to all lessons	Applies to all lessons
REPRESENTATION		
Create and use representations to organize, record, and communicate mathematical ideas;	Applies to all lessons	Applies to all lessons
Select, apply, and translate among mathematical representations to solve problems;	Applies to all lessons	Applies to all lessons
Use representations to model and interpret physical, social, and mathematical phenomena.	Applies to all lessons	Applies to all lessons