GRADE 8 PACKET SUMMARIES

Packet	Summary	Max Class Hours	Standards (Primary) (Connections)
8-1 Plane and Solid Figures	Students develop formulas for volume of a cylinder, cone, and sphere, and apply them to problem-solving. They explore facts about the measurements of angles in triangles and parallel lines.	3 lessons 14 hours	8.G.5, 9
8-2 Real Numbers and the Pythagorean Theorem	Students work with perfect squares, square roots, and approximations of square roots that are not perfect. They explore and prove the Pythagorean theorem and apply it to solving problems. They learn that the sets of rational and irrational numbers together make up the real number system, change repeating decimal numbers to fractions, and examine rational approximations of some irrational numbers.	3 lessons 17 hours	8.EE.2, 8.G.6,7,8 8.NS1,2
8-3 The Algebra of Exponents and Roots	Students develop rules for working with integer exponents, write very large and very small quantities in different forms and solve problems. They work with squares, square roots, cubes, and cube roots of rational numbers, and solve equations involving variables squared and cubed.	3 lessons 14 hours	8.EE.1-4
8-4 Introduction to Functions	Students use words, pictures, tables of numbers, and graphs to represent, describe, and analyze situations involving area, money, and rates. They explore the concept of a function, compare representations of functions, and look at examples of functions and non-functions. Function and graph of a function are defined.	3 lessons 15 hours	8.EE.5, 8.F.1-5
8-5 Linear Functions	Students find the slopes of lines by counting on grids and also using coordinates, write equations of lines in slope-intercept form, and connect different representations (tables, graphs, equations) while solving problems. The meaning of slope is extended to horizontal and vertical lines, and to derive the equation of a line using algebra.	3 lessons 14 hours	8.EE.6, 8.F.2-5
8-6 Bivariate Data	Students construct scatter plots for bivariate numerical data, investigate patterns of association, and interpret the data. They estimate lines of best fit and their equations, and interpret their meanings in context in order to use them as predictive models.	3 lessons 13 hours	8.SP.1-4 8.F.4,5
8-7 Linear Equations and Systems 1	Students solve linear systems of equations by graphing and understand that a system can have exactly one, zero, or infinitely many solutions. Substitution is introduced to rewrite systems of equations as a single equation and to verify solutions. Students use balance techniques, a hands-on model, and algebra to solve equations with variables on both sides of the equal sign.	3 lessons 14 hours	8.EE.7,8 8.F.2,3,4
8-8 Linear Equations and Systems 1	This packet picks up where the previous one leaves off. Students solve equations that involve non-integer coefficients and constants using algebra, use algebraic techniques to solve systems of linear equations, and solve geometry, rate, and money problems using algebra.	3 lessons 13 hours	8.EE.7,8 8.F.2,3,4
8-9 Congruence	Students explore rigid motion transformations – translations, rotations, and reflections – using patty paper and with coordinates, which leads to the definition of congruent figures.	3 lessons 15 hours	8.G.1,2,3 8.F.1, 8.G.7
8-10 Similarity	Students experiment with dilations, explore similarity, and compare properties of similarity and congruence. The angle-angle criterion for similar triangles is established and used to show that triangles are similar. Properties of similarity are linked to the slope of a line.	3 lessons 12 hours	8.G.3,4,5 8.F.3 8.EE.2