UNIT 3 OVERVIEW				
SECTION	CORE PROBLEMS	VIDEOS	Lesson Objectives	CCSS Standards
4.1.1	4-1 thru 4-6	Scale Factor and Corresponding Sides	Simple Figures	7.G.1
4.1.2	4-11 thru 4-15	Scale Drawings and Models	Scale Drawings Scaling Figures and Scale Factor (parent guide)	7.G.1
4.2.1	4-21 thru 4-26 & 4-34, 4-35	Recognizing Proportional Relationships	Recognizing Proportional Relationships	7.RP.2a
4.2.2	4-36 thru 4-38	Proportional Relationships using tables and graphs	Proportional Relationships with Tables and Graphs Proportional Relationships (parent guide)	7.RP.2a 7.RP.2b
4.2.3	4-46 thru 4-48	Solving Proportions	Unit Rate and Proportional Equations	7.RP.1, 7.RP.2a, 7.RP.2b, 7.RP.2c, 7.RP .2d
4.2.4	4-55 thru 4-58	Connections Web	Connecting Representations of Proportional Relationships Rates and Unit Rates (parent guide)	7.RP.2a, 7.RP.2b, 7.RP.2c, 7.RP.2d
5.1.1	5-1 thru 5-6	Part to Whole Relationships	Part-Whole Relationships Percent Problems using Diagrams (parent guide)	7.RP.3
5.1.2	5-14 thru 5-16	Percent of a Whole Number	Finding and Using Percentages Ratios (parent guide)	7.RP.3

5.2.1	5-23 thru 5-26	Constructing Probability Trees	Probability Games (Converting Fractions and Decimals)	7.RP.2a
5.2.2	5-34 & 5-35		Computer Simulations of Probability (Evaluating Expressions)	7.SP.7b, 7.SP.8c
5.2.3	5-43 thru 5-45		Compound Independent Events (Combining Like Terms) Independent and Dependent Events (parent guide)	7.SP.6
5.2.4	5-54 thru 5-58		Probability Tables (Creating Ratios)	7.SP.8b
5.2.5	5-65 thru 5-68		Probability Trees (Multiplying Fractions)	7.SP.8a
5.2.6	5-76 thru 5-77 5-79 thru 5-81	Compound Events	Compound Events (Multiplying Fractions) Probability of Compound Events (parent guide)	7.SP.8a, 7.SP.8b

Review Standards from Prior Grades

6.G.A.1
Area of polygons by decomposing into triangles and rectangles.
6.RP.A.2
Understand unit rate.
6.RP.A.3
Ratio and rate reasoning with ratios, tables, equations, double number lines.
6.EE.A.3
Write equivalent expressions.
6.EE.A.4
Identify equivalent expressions.

7th Grade CCSS Standards

7.RP.A.1

Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour.*

7.RP.A.2a, b, c, d

Recognize and represent proportional relationships between quantities.

a) Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
b) Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
c) Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.*
d) Explain what a point (*x*, *y*) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r*) where r is the unit rate.

7.EE.A.1

Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

7.G.A.1

Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.

7.RP.A.3

Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error..

7.EE.B.3

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*

7.SP.C.6

Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*

7.SP.C.7

Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.

a) Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*

b) Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*

7.SP.C.8

Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

a) Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.

b) Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.

   a) Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?* Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.

   b) Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?

7.SP.C.8

Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.

Mathematical Vocabulary

The following is a list of vocabulary found in this unit It is a good idea to make sure you are familiar with these words and to know what they mean. For the words you do not know, refer to the glossary or index. You might also want to add these words to your Toolkit for a way to reference them in the future.

5-D Process	consecutive integers	complement
compound events	desired outcomes	dependent events
equivalent ratios	experimental probability	independent events
mutually exclusive	outcome	partition
percent	possible outcomes	probability
probability table	probability tree	proportional relationship
ratio	sample space	scalene triangle
simplify	simulation	single event
systematic list	theoretical probability	variable

algebraic expression	Associative Property	combining like terms
Commutative Property	constant term	constant of proportionality
corresponding parts	Distributive Property	equivalent expressions
evaluate	proportional relationship	scale drawing
scale factor	similar figures	simplify
terms	unit rate	variable

** Please note this is a comprehensive curriculum and will include additional mathematical content and standards. This is *ONLY* an overview of Unit 3.

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