

ESSENTIAL ELEMENT, LINKAGE LEVELS, AND MINI-MAP

MATH: GRADE 6

M.EE.6.RP.1

Grade-Level Standard	DLM Essential Element	Linkage Levels
M.6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."	M.EE.6.RP.1 Demonstrate a simple ratio relationship	Initial Precursor: <ul style="list-style-type: none"> Recognize wholeness Recognize a unit Recognize parts of a given whole or a unit Distal Precursor: <ul style="list-style-type: none"> Model equal part Proximal Precursor: <ul style="list-style-type: none"> Partition any shape into equal parts Explain unit fraction Recognize fraction Target: <ul style="list-style-type: none"> Recognize many to 1 ratio Represent many to 1 ratio Successor: <ul style="list-style-type: none"> Recognize many to many ratio

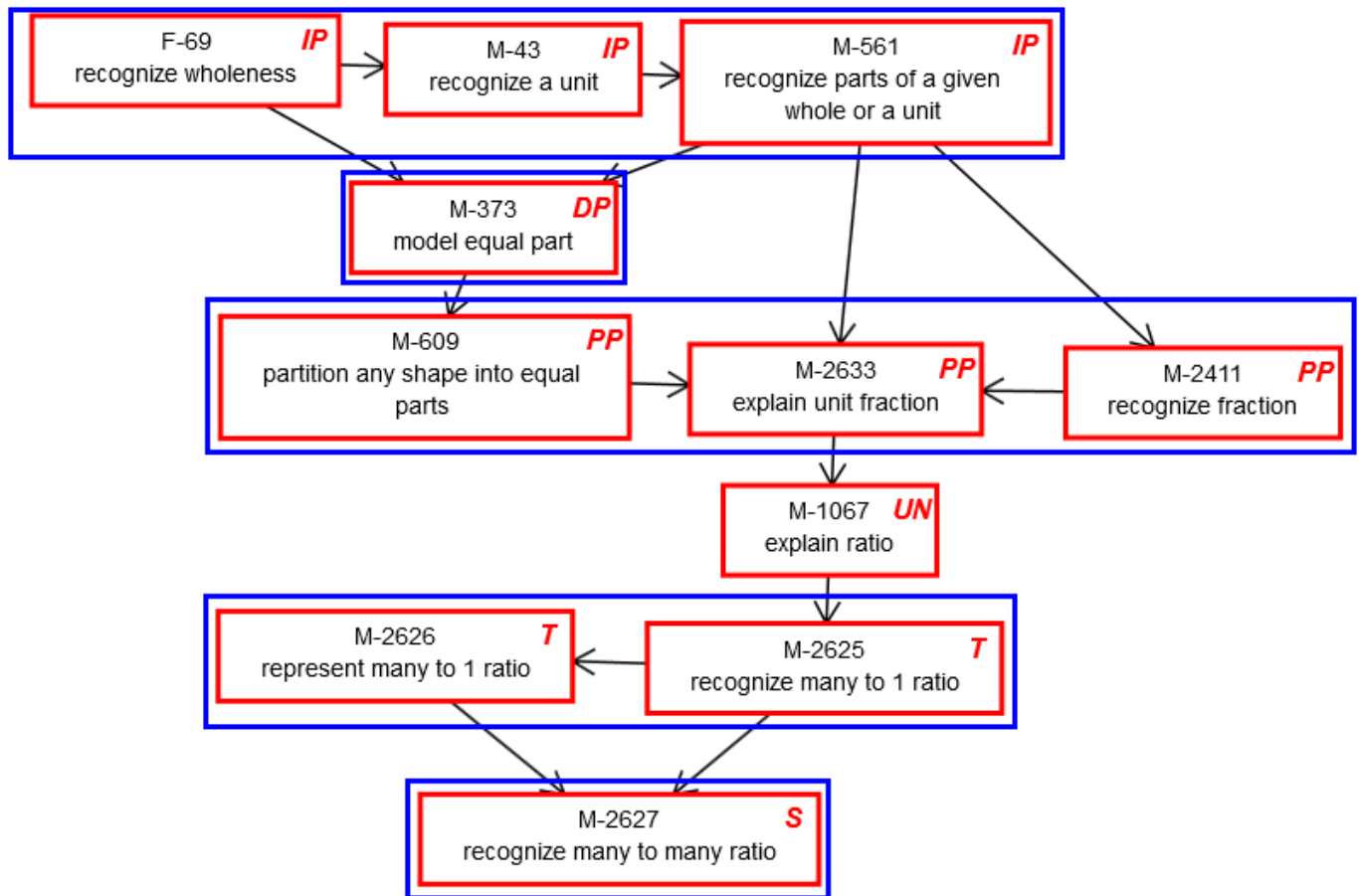
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A diagram showing the relationship of nodes in the mini-map appears below.

Key to map codes in upper right corner of node boxes:

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M.EE.6.RP.1 Demonstrate the simple ratio relationship



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M.EE.6.NS.1

Grade-Level Standard	DLM Essential Element	Linkage Levels
M.6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions, e.g., by using visual fraction models and equations to represent the problem	M.EE.6.NS.1 Compare the relationships between two unit fractions	<p>Initial Precursor:</p> <ul style="list-style-type: none"> Recognize wholeness Recognize a unit Recognize parts of a given whole or unit <p>Distal Precursor:</p> <ul style="list-style-type: none"> Model equal part Partition any shape into equal parts <p>Proximal Precursor:</p> <ul style="list-style-type: none"> Recognize fraction Explain unit fraction Recognize numerator Recognize denominator <p>Target:</p> <ul style="list-style-type: none"> Explain relationships between unit fractions <p>Successor:</p> <ul style="list-style-type: none"> Explain numerator Explain denominator Compare fractions using models Decompose a fraction into a sum of unit fractions with the same denominator Add fractions with common denominators

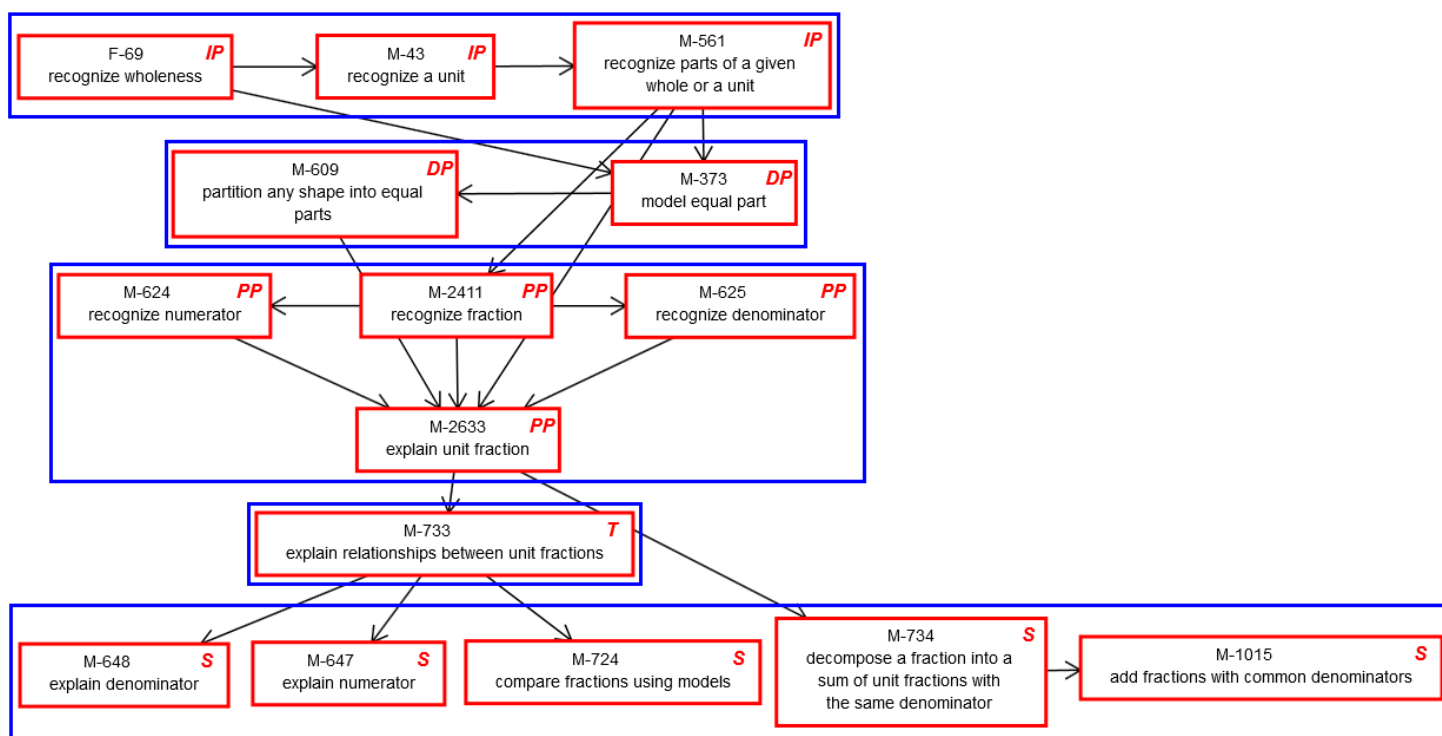
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M.EE.6.NS.1 Compare the relationships between two unit fractions



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MATH: GRADE 6

M.EE.6.NS.5-8

Grade-Level Standard	DLM Essential Element	Linkage Levels
<p>M.6.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation; M.6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates; M.6.NS.7 Understand ordering and absolute value of rational numbers; M.6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate</p>	<p>M.EE.6.NS.5-8</p> <p>Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero)</p>	<p>Initial Precursor:</p> <ul style="list-style-type: none"> Recognize separateness Recognize set <p>Distal Precursor:</p> <ul style="list-style-type: none"> Count all objects in a set or subset Recognize different number of Recognize same number of Recognize fewer number of Recognize more number of <p>Proximal Precursor:</p> <ul style="list-style-type: none"> recognize opposite numbers <p>Target:</p> <ul style="list-style-type: none"> Use positive and negative numbers in real-world contexts <p>Successor:</p> <ul style="list-style-type: none"> Relate the meaning of 0 to positive and negative numbers in real-world contexts Explain inequalities from real world contexts

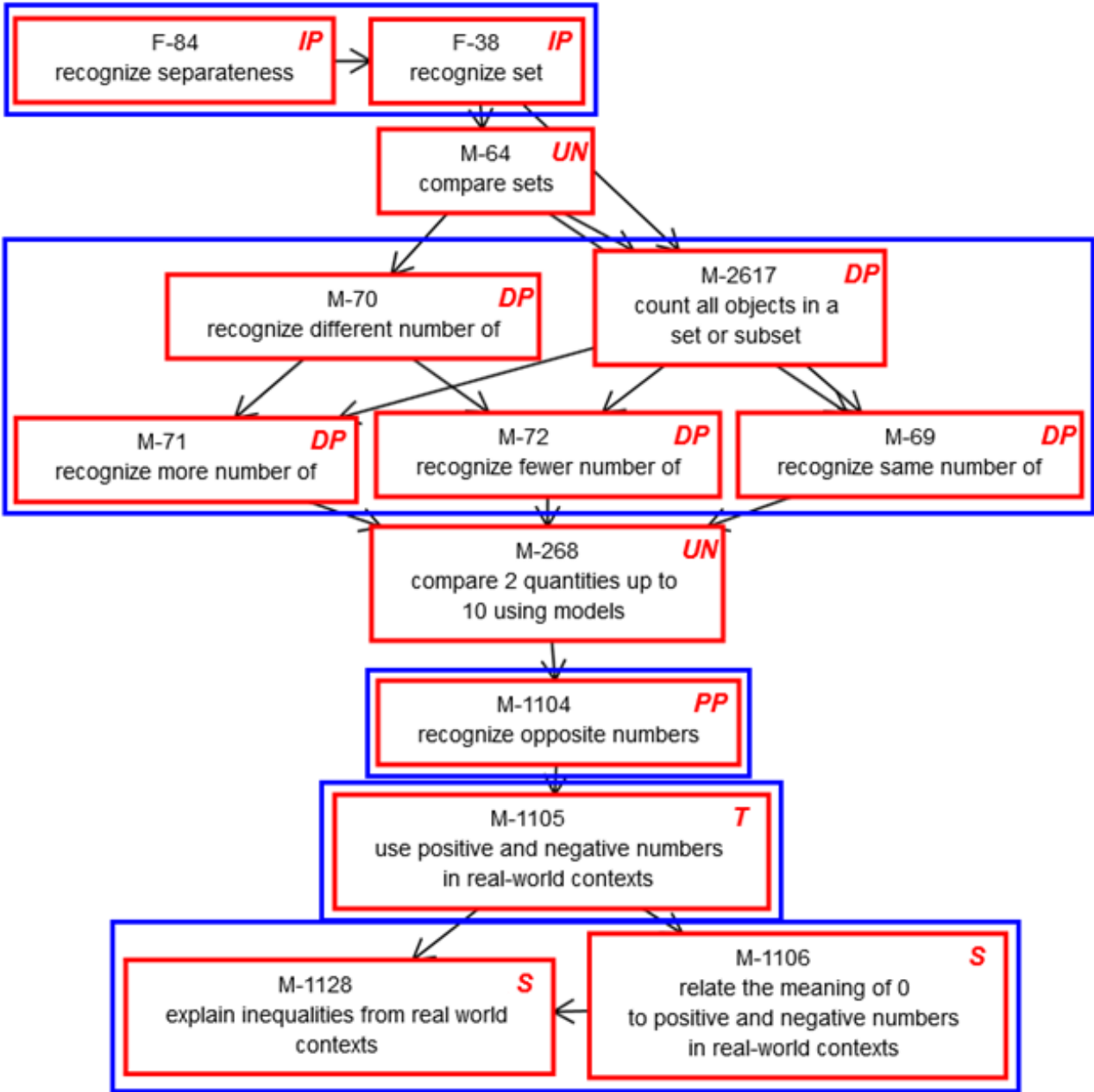
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M.EE.6.NS.5-8 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero)



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MATH: GRADE 6

M.EE.6.NS.2

Grade-Level Standard	DLM Essential Element	Linkage Levels
M.6.NS.2 Fluently divide multi-digit numbers using the standard algorithm	M.EE.6.NS.2 Apply the concept of fair share and equal shares to divide	Initial Precursor: <ul style="list-style-type: none"> Recognize separateness Recognize set Recognize subset Distal Precursor: <ul style="list-style-type: none"> Partition sets Partition sets into equal subsets Proximal Precursor: <ul style="list-style-type: none"> Explain repeated subtraction Represent repeated subtraction with an equation Represent repeated subtraction with a model Target: <ul style="list-style-type: none"> Demonstrate the concept of division Successor: <ul style="list-style-type: none"> Divide by 1, 2, 3, 4, 5, or 10

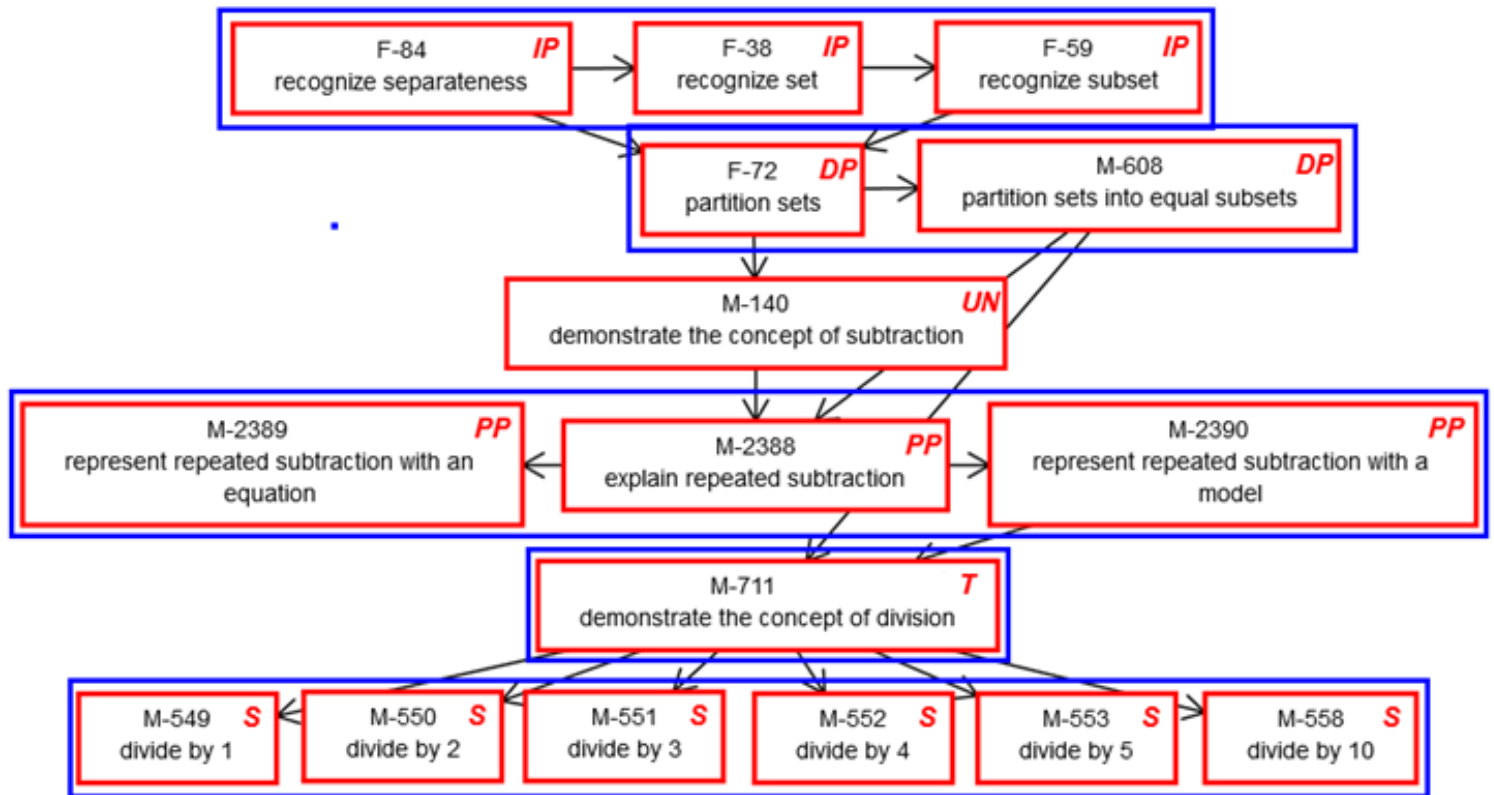
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M.EE.6.NS.2 Apply the concept of fair share and equal shares to divide



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M.EE.6.NS.3

Grade-Level Standard	DLM Essential Element	Linkage Levels
M.6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation	M.EE.6.NS.3 Solve two factor multiplication problems with products up to 50 using concrete objects and/or a calculator	Initial Precursor: <ul style="list-style-type: none"> Recognize separateness Recognize set Recognize subset Distal Precursor: <ul style="list-style-type: none"> Explain repeated addition Represent repeated addition with an equation Solve repeated addition problems Proximal Precursor: <ul style="list-style-type: none"> Demonstrate the concept of multiplication Target: <ul style="list-style-type: none"> Multiply by 1, 2, 3, 4, and/or 5 Successor: <ul style="list-style-type: none"> Apply the relationship between multiplication and division Divide by 1, 2, 3, 4, and/or 5

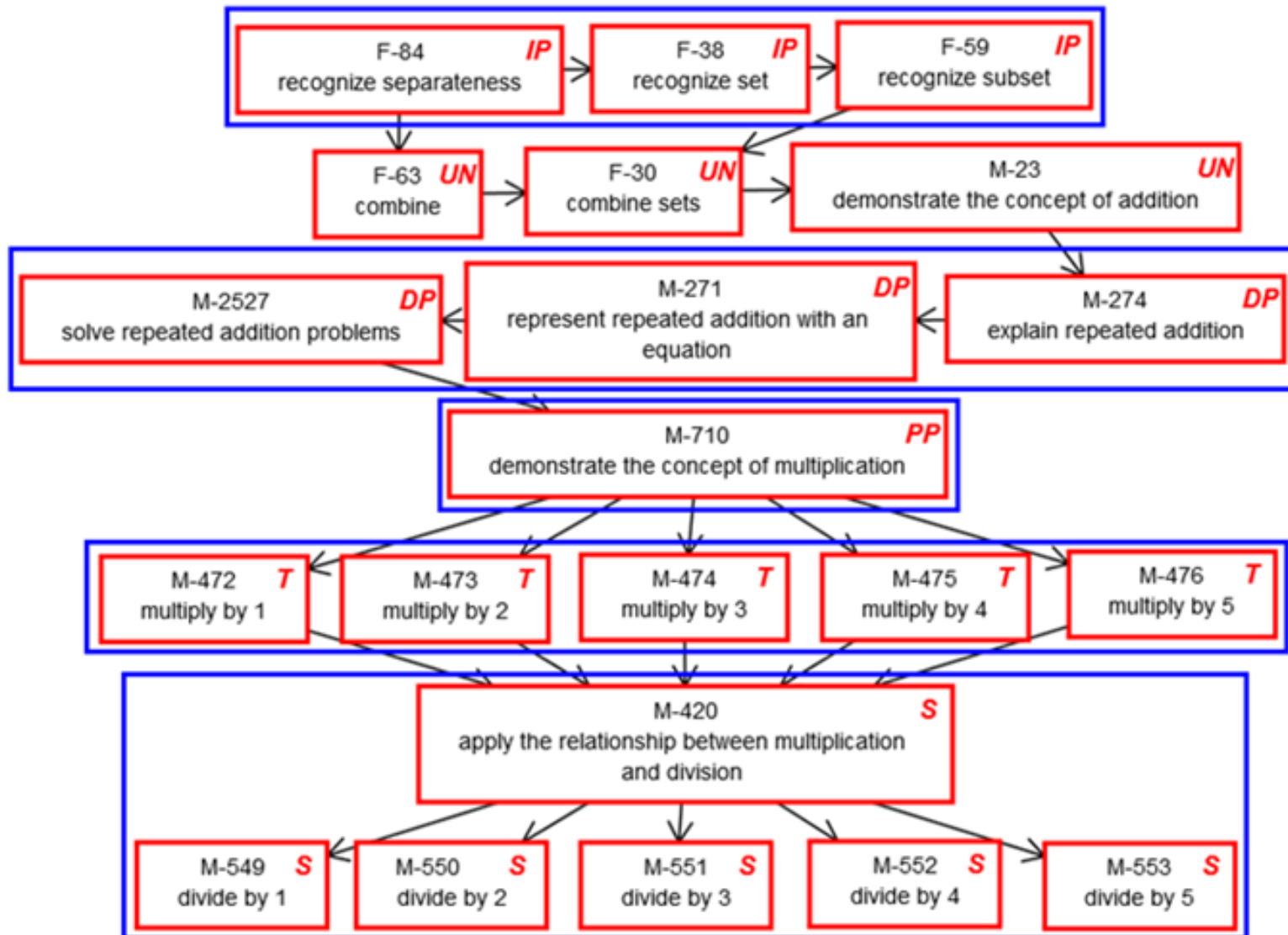
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M.EE.6.NS.3 Solve two factor multiplication problems with products up to 50 using concrete objects and/or a calculator



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M.EE.6.G.1

Grade-Level Standard	DLM Essential Element	Linkage Levels
M.6.G.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems	M.EE.6.G.1 Solve real-world and mathematical problems about area using unit squares	Initial Precursor: <ul style="list-style-type: none"> Recognize some Recognize separateness Distal Precursor: <ul style="list-style-type: none"> Explain unit square Explain area Proximal Precursor: <ul style="list-style-type: none"> Calculate area by counting unit squares Calculate area of a rectangle with tiling Target: <ul style="list-style-type: none"> Solve word problems involving area of rectangles Successor: <ul style="list-style-type: none"> Relate tiling and formula as methods for calculating area of a rectangle Calculate area for rectangles with formula

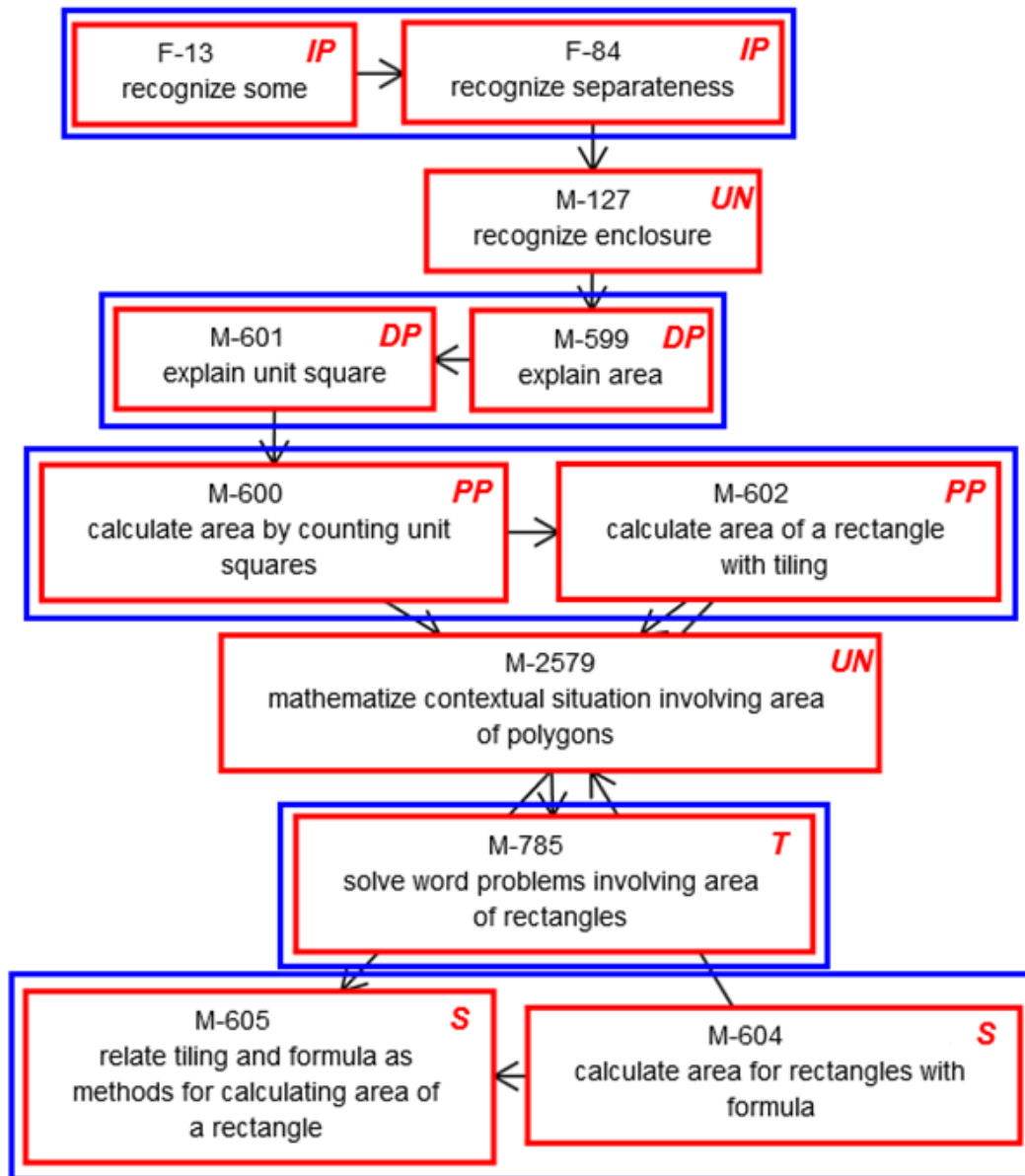
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M.EE.6.G.1 Solve real-world and mathematical problems about area using unit squares



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M.EE.6.G.2

Grade-Level Standard	DLM Essential Element	Linkage Levels
M.6.G.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism	M.EE.6.G.2 Solve real-world and mathematical problems about volume using unit cubes	Initial Precursor: <ul style="list-style-type: none"> Recognize separateness Recognize enclosure Distal Precursor: <ul style="list-style-type: none"> Explain volume Explain a unit cube Explain volume as a composition of cube units Proximal Precursor: <ul style="list-style-type: none"> Calculate volume by counting unit cubes Calculate volume of a right rectangular prism by packing unit cubes Target: <ul style="list-style-type: none"> Solve word problems involving volume of rectangular prisms Successor: <ul style="list-style-type: none"> Calculate volume of right rectangular prisms with formula

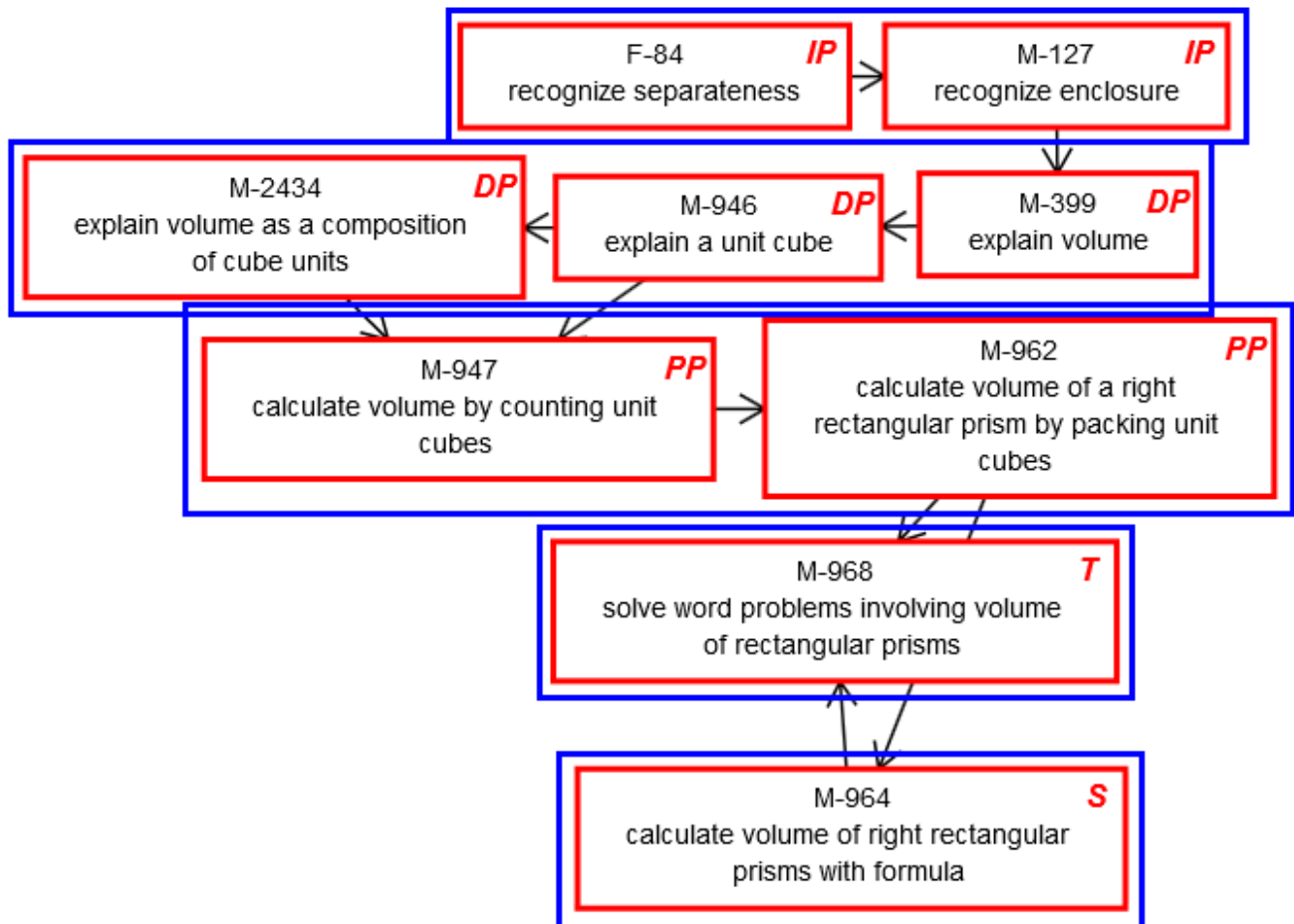
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M.EE.6.G.2 Solve real-world and mathematical problems about volume using unit cubes



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M.EE.6.SP.5

Grade-Level Standard	DLM Essential Element	Linkage Levels
M.6.SP.5 Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations; Describing the nature of the attribute under investigation, including how it was measured and its units of measurement; Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered; Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered	M.EE.6.SP.5 Summarize data distributions shown in graphs or tables	Initial Precursor: <ul style="list-style-type: none"> Classify Order objects Distal Precursor: <ul style="list-style-type: none"> Recognize that distribution of data can be described by overall shape of a graph Recognize the structure of a line plot (dot plot) Proximal Precursor: <ul style="list-style-type: none"> Recognize outliers Recognize peaks in data distribution Recognize symmetric distribution Analyze the overall shape of the data distribution Target: <ul style="list-style-type: none"> Summarize data by overall shape Successor: <ul style="list-style-type: none"> Use the overall shape of data distribution to recognize appropriate measures of center or spread

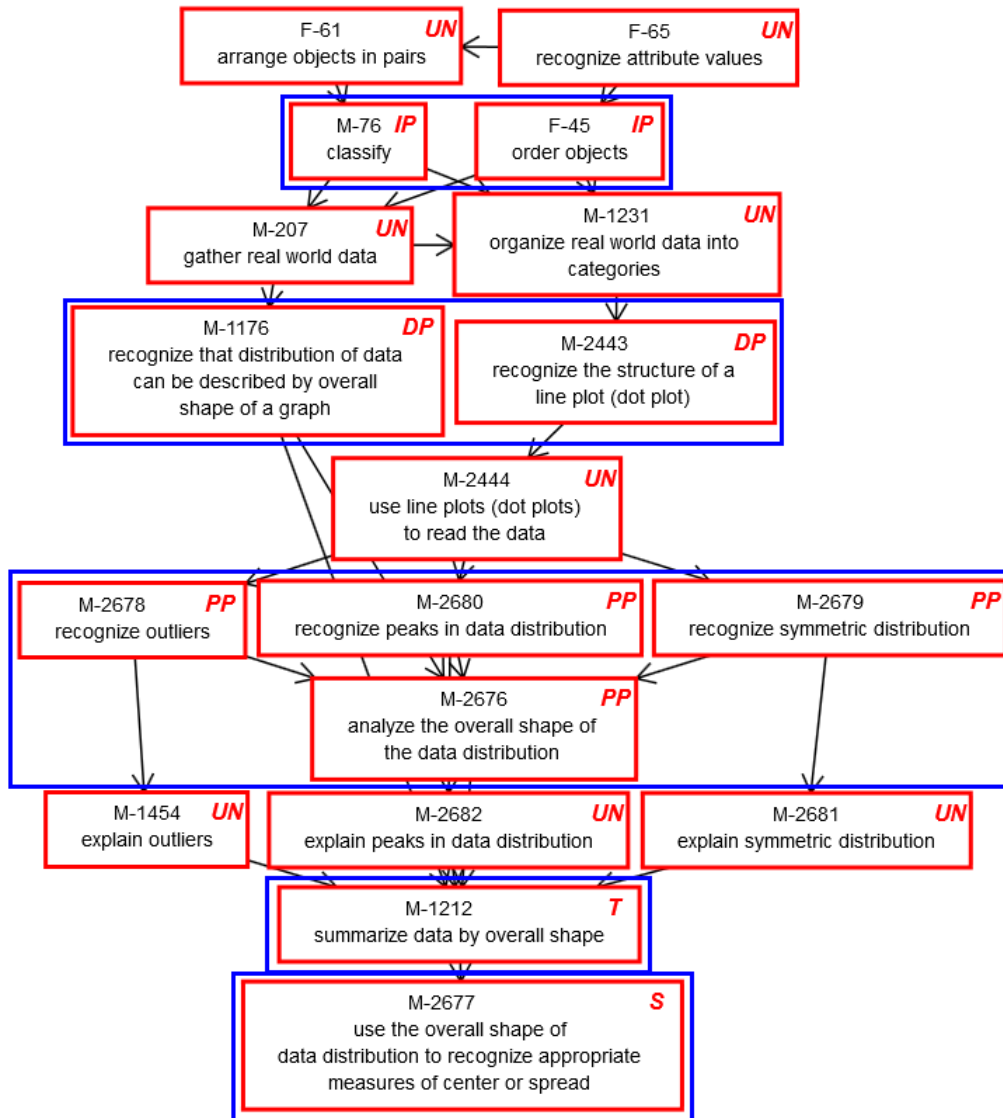
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M.EE.6.SP.5 Summarize data distributions shown in graphs or tables



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M.EE.6.EE.1-2

Grade-Level Standard	DLM Essential Element	Linkage Levels
M.6.EE.1 Write and evaluate numerical expressions involving whole-number exponents; M.6.EE.2 Write, read, and evaluate expressions in which letters stand for numbers	M.EE.6.EE.1-2 Identify equivalent number sentences	<p>Initial Precursor:</p> <ul style="list-style-type: none"> Combine sets Compare sets <p>Distal Precursor:</p> <ul style="list-style-type: none"> Demonstrate the concept of addition Demonstrate the concept of subtraction <p>Proximal Precursor:</p> <ul style="list-style-type: none"> Represent addition with equations Represent the unknown in an equation Represent subtraction with equations <p>Target:</p> <ul style="list-style-type: none"> Evaluate if equations are true or false Recognize equivalent algebraic expressions <p>Successor:</p> <ul style="list-style-type: none"> Use properties of addition to create an equivalent algebraic expression

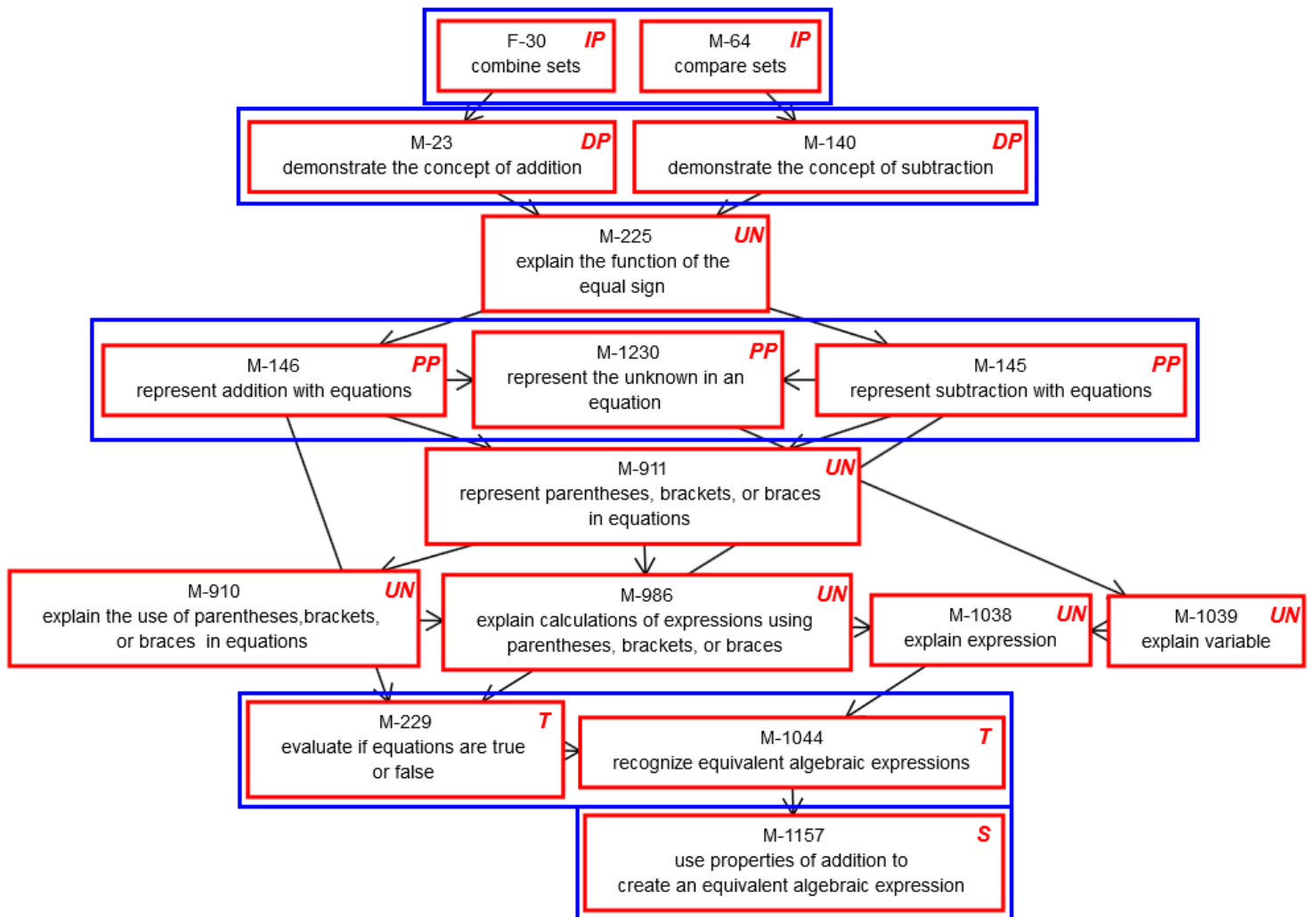
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M.EE.6.EE.1-2 Identify equivalent number sentences



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M.EE.6.EE.3

Grade-Level Standard	DLM Essential Element	Linkage Levels
M.6.EE.3 Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$	M.EE.6.EE.3 Apply the properties of addition to identify equivalent numerical expressions	Initial Precursor: <ul style="list-style-type: none"> Compare sets Combine sets Distal Precursor: <ul style="list-style-type: none"> Represent the unknown in an equation Represent subtraction with equations Represent addition with equations Proximal Precursor: <ul style="list-style-type: none"> Evaluate if equations are true or false Apply associative property of addition Apply commutative property of addition Target: <ul style="list-style-type: none"> Recognize equivalent algebraic expressions Use properties of addition to create an equivalent algebraic expression Successor: <ul style="list-style-type: none"> Use properties of operations to generate equivalent expressions involving addition Use properties of operations to generate equivalent expressions involving subtraction

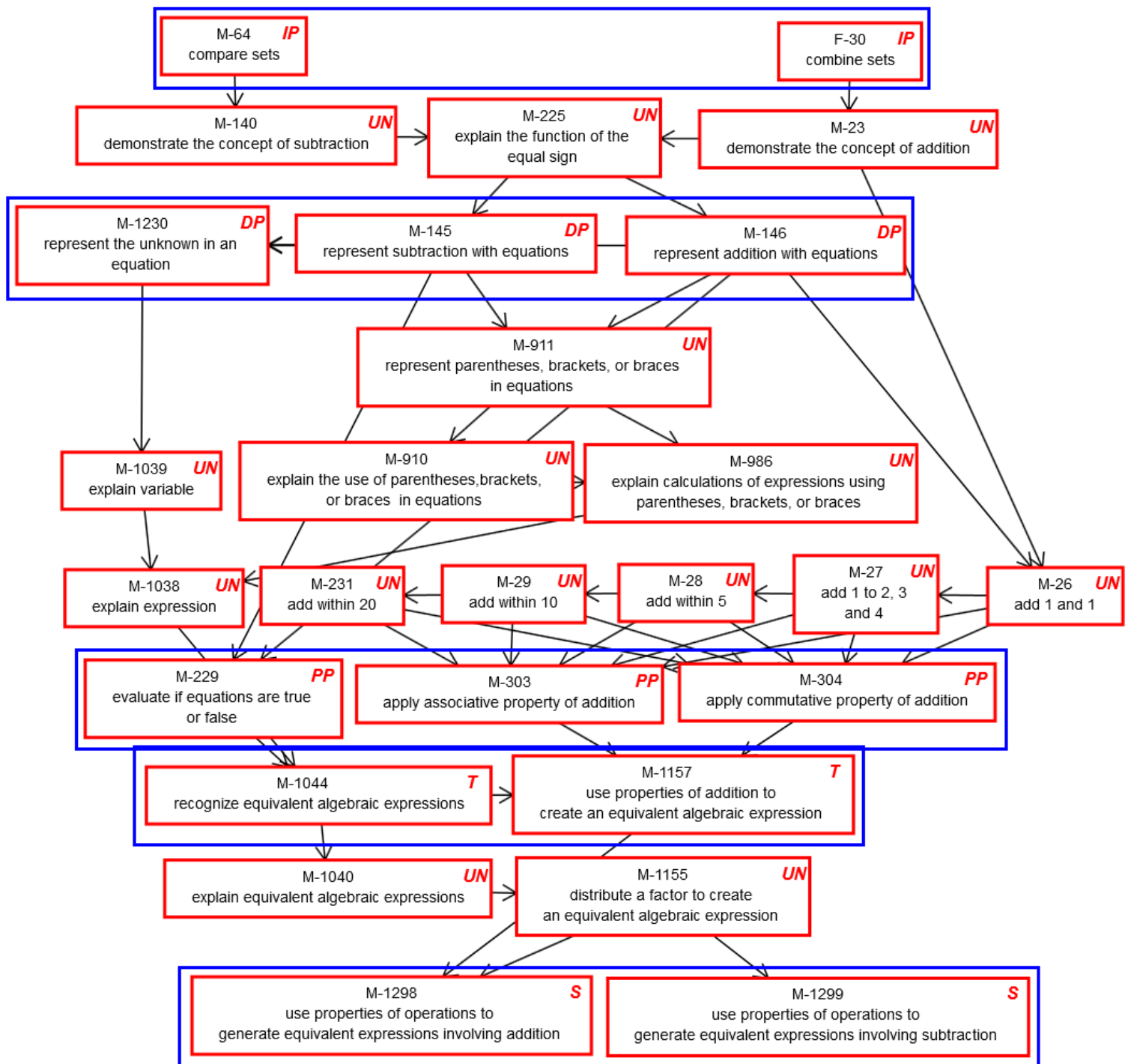
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M.EE.6.EE.3 Apply the properties of addition to identify equivalent numerical expressions



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MATH: GRADE 6

M.EE.6.EE.5-7

Grade-Level Standard	DLM Essential Element	Linkage Levels
M.6.EE.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true; M.6.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set; M.6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers	M.EE.6.EE.5-7 Match an equation to a real-world problem in which variables are used to represent numbers	Initial Precursor: <ul style="list-style-type: none"> Partition sets Combine sets Distal Precursor: <ul style="list-style-type: none"> Represent subtraction with equations Represent addition with equations Proximal Precursor: <ul style="list-style-type: none"> Represent expressions with variables Represent the unknown in an equation Target: <ul style="list-style-type: none"> Represent real-world problems as equations Successor: <ul style="list-style-type: none"> Solve real-world problems using equations with non-negative rational numbers

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M.EE.6.EE.5-7 Match an equation to a real-world problem in which variables are used to represent numbers

