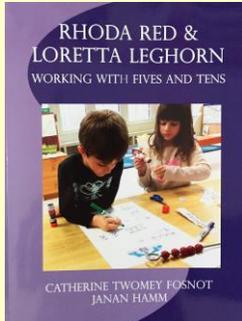


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packages.*

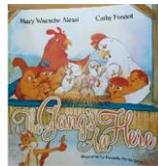
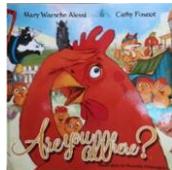
KINDERGARTEN UNITS

Kindergarten

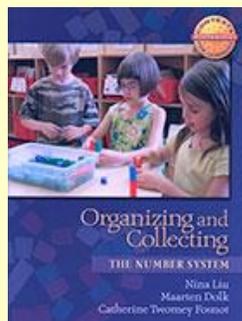


Rhoda Red and Loretta Leghorn: working with fives and tens

Introduces the 5- and 10-bead Mathracks™. The unit builds on children's innate ability to subitize small amounts (1, 2, and 3) and uses it to develop the five-structure, eventually supporting children to see for example, 5 inside of 7, and 5 inside of 8. In the second week of the unit the 10-structure is developed, first as 5+5, and then relationships between equivalent facts are explored and developed using compensation and associativity, for example, $3+7=4+6=5+5$.



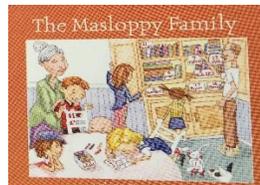
Related Read-Alouds



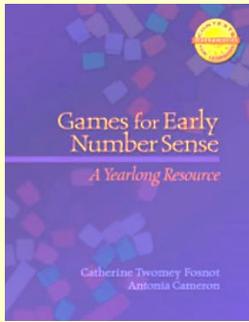
Organizing and Collecting: the number system

Kindergarten

Supports the development of counting, making groups of fives and tens, skipcounting, representing amounts, and the noticing of the place value patterns in our number system. Although used in the beginning of the year, this unit is repeated at the end of the year using the context that inventory is needed again to see if the teacher needs to order new materials for the next year's class. Using it again continues to support the development of counting, making groups of fives and tens, representing amounts, and examining the place value patterns in our number system.



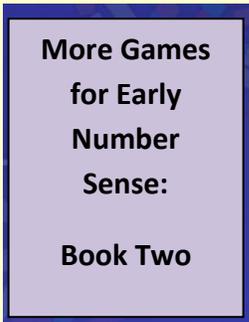
Related Read-Aloud



Games for Early Number Sense: Book One

Kindergarten

Introduced in September and used throughout the year. In K-1, math workshop is often a games workshop, with the kids playing games or doing quick images and minilessons with the teacher. Play the games often and bring in board games and dice games, as well. Research shows that board games can increase achievement as they are a precursor to the number line model.

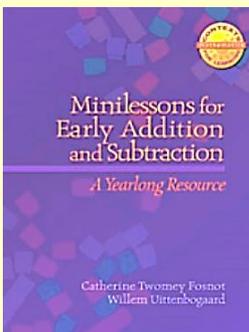


More Games for Early Number Sense: Book Two

Kindergarten

More Games for Early Number Sense: Book Two will be available in the Fall, 2018.

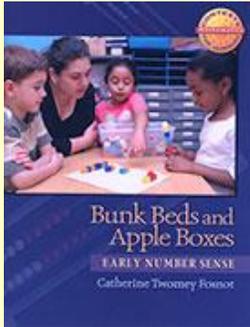
The two books of games can also be used in Grade 1.



Minilessons for Early Addition and Subtraction

Kindergarten

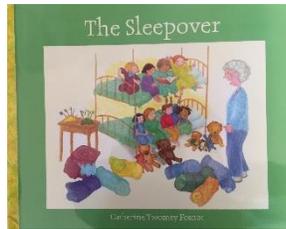
A resource of minilessons using strings of related problems and quick images for use each day to support the development of early number sense. It is introduced in September and used throughout the year. Emphasize the quick images and the 5 and 10 Mathracks™ in the fall. After using *Bunkbeds and Apple Boxes*, use the resource with the 20-bead Mathrack™ to start working on the basic addition facts to 20.



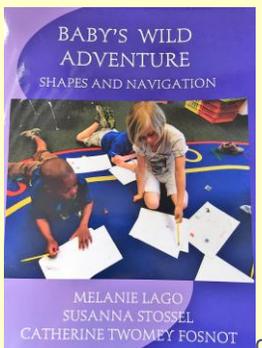
Bunk Beds and Apple Boxes: Early Number Sense

Kindergarten

Introduces the 20-bead Mathrack™ and supports the development of cardinality, equivalence, compensation, conservation, addition and subtraction (part/whole), and symbolic representation of quantities.



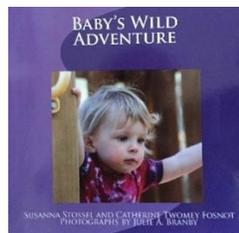
Related Read-aloud



Baby's Wild Adventure: Shapes and Navigation

Kindergarten

Builds on the early core geometries of shape recognition and navigation. Engages children in movement, navigation, early map-making, and exploring and drawing 2-dimensional shapes.



Related Read-aloud



My Favorite Collections: sorting and representing

Kindergarten

Slated for fall 2018

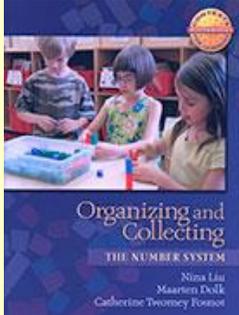
Children begin collections of their favorite things, for example: little toy cars, dolls, rocks, insects, shells. They sort the objects into subgroups, explore how some categories cause objects to be in more than one group. They tally and record their quantities and early graphing appears.



Related Read-Aloud

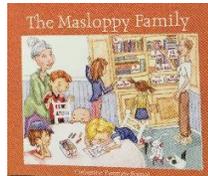
GRADE ONE UNITS

Grade One



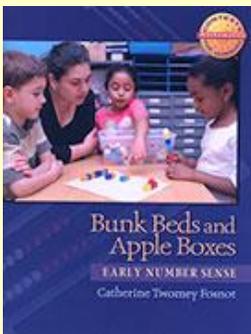
*Organizing and Collecting:
the number system*

This unit is used again: twice in grade one, as well as twice in kindergarten. Children do not see it as a repeat, as this is a new class with new materials in need of an inventory. Using it again continues to support the development of counting, making groups of fives and tens, skipcounting, representing amounts, and early place value. In grade one the amounts being inventoried can be greater and more emphasis can be placed on the place value patterns in our number system.



Related Read-Aloud

Grade One



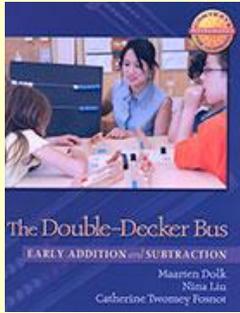
*Bunk Beds and Apple
Boxes: Early Number Sense*

If this unit was not used in kindergarten, it should be used early in the year of grade one. It introduces the 20-bead Mathrack™ and supports the development of cardinality, equivalence, compensation, conservation, addition and subtraction (part/whole), and the symbolic representation of quantities up to 20. The 20-bead Mathrack™ model is critical to develop the basic addition and subtraction facts. If the unit was used previously, but your children need more work on these ideas, you can substitute a different context for the apples, like 2 types of Halloween candy, or two different kinds of fruit, or balls. You can also use the same context (the red and green apples) and just remind children that mathematicians love doing problems again to see if they can think of even better strategies than they used before.



Related Read-aloud

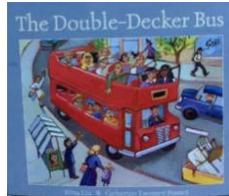
Grade One



The Double-decker Bus:

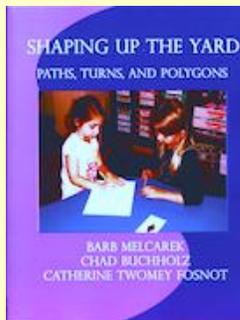
*Early Addition and
Subtraction*

Develops the basic facts to 20 and works toward getting the facts automatic by employing the use of the 20-bead Mathrack™ to support the use of the five and ten structures and strategies such as doubles +/-, making a ten, and compensation. After the unit is done, work on minilessons with the rack all year to get the basic facts automatic.



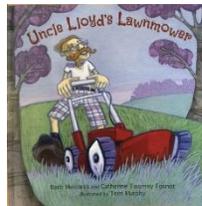
Related Read-Aloud

Grade One

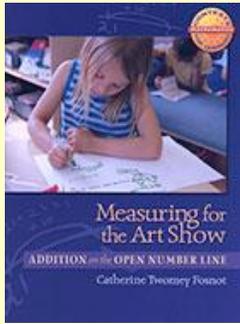


*Shaping Up the Yard:
Paths, Turns, and Polygons*

Fosters exploration of the shapes of large-scale navigable surface layouts and small scale drawn shapes. [Note: if Baby's Wild Adventure was not used in K, you can use that unit on grade one also, but do it prior to Shaping Up the Yard.]



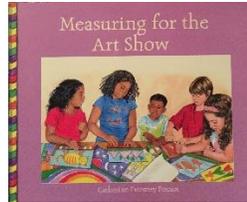
Related Read-Aloud



Measuring for the Art Show: Addition on the Open Number Line

Grade One

Introduces measurement with non-standard units to emerge the open number line model and prepares the way for examining 2-digit numbers, magnitude, number relations, landmark numbers, and addition up to 100. This unit needs to be done BEFORE addition with double digit work starts.



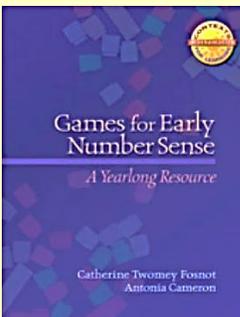
Related Read-aloud



Farms and Fences: Linear Measurement

Grade One

Supports children to construct length as a linear span, from point-to-point, that can be measured with an iteration of smaller linear units. The need for a common standard unit emerges and feet and centimeters are introduced.



Games for Early Number Sense: Book One

Grade One

Introduced in September and used throughout the year. In K-1, math workshop is often a games workshop, with half the kids on DreamBox and half the kids playing games or doing quick images and minilessons with the teacher. Play the games often and bring in board games and dice games, as well. Research shows that board games can increase achievement as they are a precursor to the number line model.

Grade One

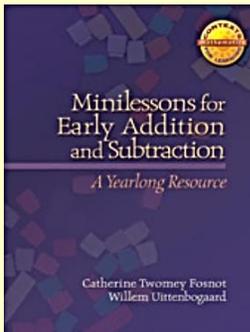
More Games
for Early
Number
Sense:

Book Two

*More Games for Early
Number Sense: Book Two*

More Games for Early Number Sense: Book Two will be available in the Fall, 2018.

Grade One



*Minilessons for Early
Addition and Subtraction*

A resource of minilessons using strings of related problems and quick images for use each day to support the development of early number sense. It is used in Grade One throughout the year. Emphasize the 5 and 10 Mathracks™ where needed. After using *Double-decker Bus*, use the resource with the 20-bead Mathrack™ every day to start working on the automatization of the basic addition and subtraction facts within 20.

Grade One

My
Favorite
Collections

CATHERINE TWOMEY FOSNOT

*My Favorite Collections:
sorting and representing
amounts*

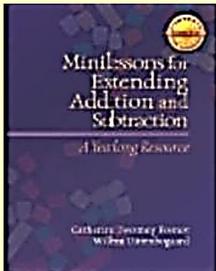
Slated for fall 2018

Children begin collections of their favorite things, for example: little toy cars, dolls, rocks, insects, shells. They sort the objects into subgroups, explore how some categories cause objects to be in more than one group. They tally and record their quantities and early graphing appears.



Related Read-Aloud

Grade One



Minilessons for Extending Addition and Subtraction

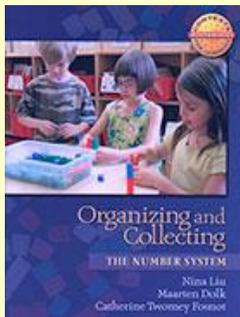
A resource of minilessons using strings of related problems for addition and subtraction. Once the open number line has been introduced with *Measuring for the Art Show*, start using this resource to support the development of strategies for addition and subtraction to 100 and beyond.

Grade One

Time
And Money

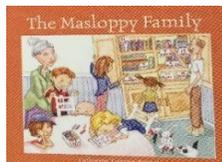
Slated for Fall 2018

Grade One



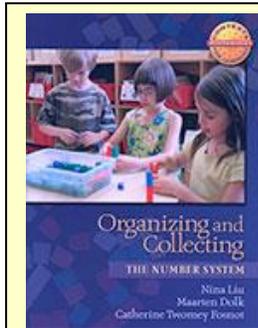
*Organizing and Collecting:
the number system*

Although used in the beginning of the year, this unit is repeated at the end of the year using the context that inventory is needed again to see if the teacher needs to order new materials for the next year's class. Using it again continues to support the development of counting, making groups of fives and tens, representing amounts, and examining the place value patterns in our number system.



Related read-aloud

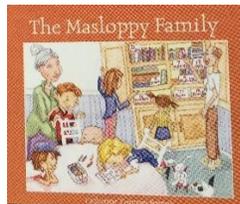
GRADE TWO UNITS



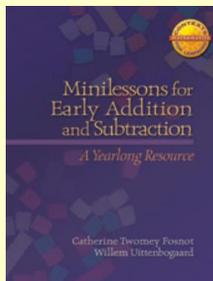
*Organizing and Collecting:
the number system*

Grade Two

If students enter grade 2 with a very weak sense of the number system and many are still challenged with counting past 100, start the year with this unit. You can differentiate the unit by the number of items you give them to inventory and the way you support them to group. For example, just increase the size of the numbers of the objects being counted to 1000.



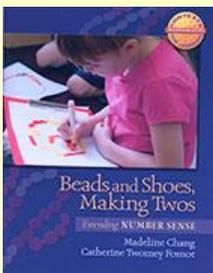
Related read-aloud



*Minilessons for Early
Number Sense, Addition and
Subtraction*

Grade Two

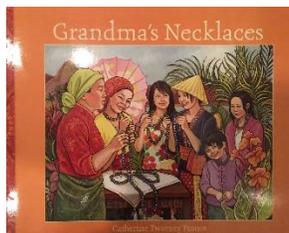
A resource for number strings. Crafted tighter to be more powerful than just number “talks,” number “strings” ensure the development of numeracy and fluent computation. In grade 2, use just the last section of the guide with the Mathrack™ if the facts are not yet automatic. Use with small guided groups needing work to get the facts automatic. DreamBox will provide the differentiation needed to help kids get the facts automatic as well.



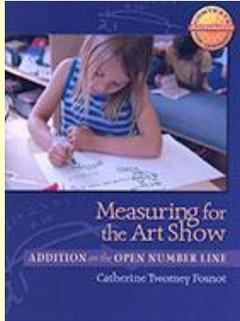
*Beads and Shoes, Making
Twos: Extending Number
Sense*

Grade Two

Introduces even and odd numbers by exploring doubles and pairs and includes more work with the Mathrack™ to get the facts automatic.



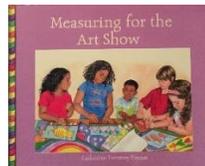
Related read-aloud



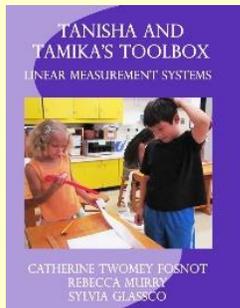
Measuring for the Art Show: Addition on the Open Number Line

Grade Two

Introduces the open number line model and prepares the way for examining 2-digit numbers, magnitude, landmark numbers, and strategies for addition and subtraction with larger numbers. If it was not used in Grade 1, it should be used at the beginning of grade 2. This unit needs to be done BEFORE addition with double digit work starts. This unit can be used in both grade 1 and 2 without it seeming like a repeat to children as it is now a different class having an art show. The numbers can also be changed to be larger if needed for challenge. Or, instead of measuring art papers, use only adding machine paper and have kids measure with meter sticks to find certain numbers (of centimeters). Go to 1000.



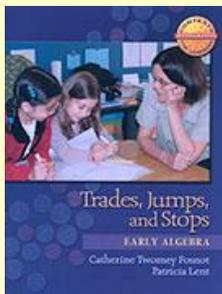
Related Read-aloud



Tanisha and Tamika's Toolbox: Linear Measurement Systems

Grade Two

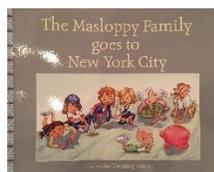
Focuses on the development of linear measurement systems, including the relationship between inches, feet, and yards and between centimeters and meters. The unit also promotes the development of the open number line model.



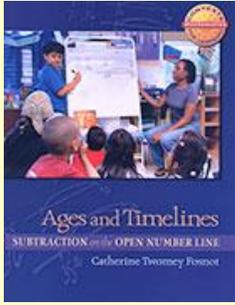
Trades, Jumps, and Stops: Early Algebra

Grade Two

Focuses on equivalence, exchanging equivalent expressions, and solving for unknowns. The context of coins (money) and exchanging equivalent amounts is used throughout.



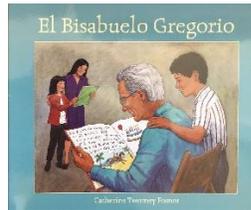
Related Read-Aloud



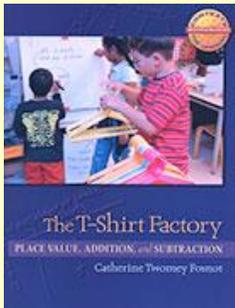
*Ages and Timelines:
Subtraction on the Open
Number Line*

Grade Two

Explores various subtraction models (difference, removal, missing addends) and relates addition to subtraction while developing mental arithmetic strategies for subtraction with 2- and 3-digit numbers.



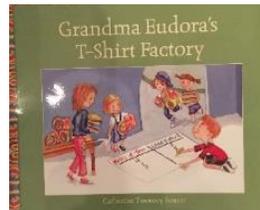
Related Read-aloud



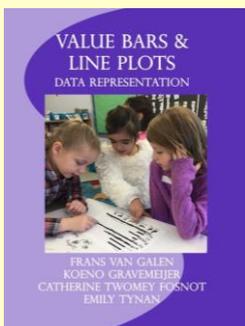
*The T-Shirt Factory:
Place Value, Addition, and
Subtraction*

Grade Two

Deepens an understanding of place value to three and four places.



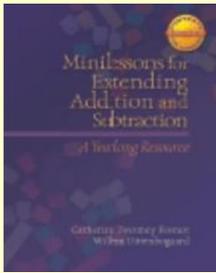
Related Read-Aloud



*Value Bars and Line Plots:
Data Representation*

Grade Two

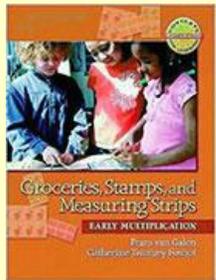
Introduces data representation using value bars and line plots. With value bars, children graph heights of animals and the length of their jumps. With line plots age frequencies and hitting the target number in a game are plotted. By the end of the unit, students are analyzing the shape of the data and drawing conclusions about data sets.



*Minilessons for Extending
Addition and Subtraction*

Grade Two

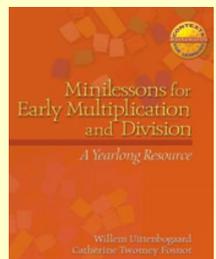
A resource of minilessons using strings of related problems for addition and subtraction. Once the open number line has been introduced with *Measuring for the Art Show*, start using this resource to support the development of strategies for addition and subtraction to 100 and beyond.



*Groceries, Stamps, and
Measuring Strips: Early
Multiplication*

Grade Two

Introduces multiplication by building sequentially from repeated addition to partial products on the open number line and starts building strategies for automaticity of the basic facts.



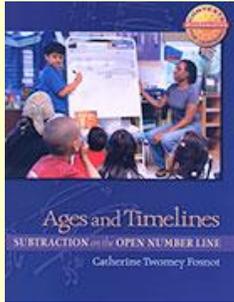
*Minilessons for Early
Multiplication and Division*

Grade Two

A resource of strings of related problems. Crafted more tightly than number “talks,” number “strings” ensure the development of numeracy and fluent computation because of the way they are crafted. Use after *Groceries, Stamps, and Measuring Strips* to begin the work towards automaticity of the basic multiplication facts. Continue with this resource in grade 3.

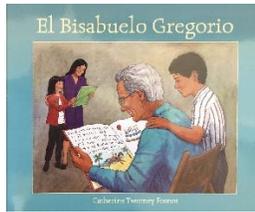
GRADE THREE UNITS

Grade Three



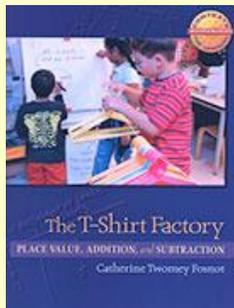
*Ages and Timelines:
Subtraction on the Open
Number Line*

Use to review various subtraction models (difference, removal, missing addends) and strategies for subtraction with 2- and 3-digit numbers. If the unit was used in Grade Two, just ask students to bring more data of birth years in of other people they know, such as aunts and uncles, grandparents, etc. or add in historical figures.



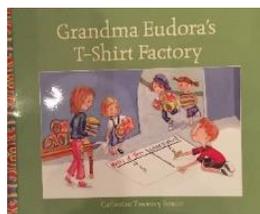
Related Read-aloud

Grade Three



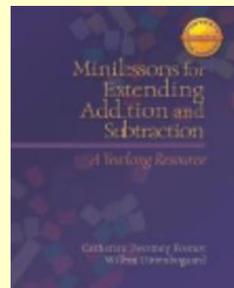
*The T-Shirt Factory:
Place Value, Addition, and
Subtraction*

Deepens an understanding of place value to three and four places. Because the unit is a simulation game it is not a repeat, even if it was used in the previous year. It's a great unit for working on addition and subtraction strategies based on place value within 1000.



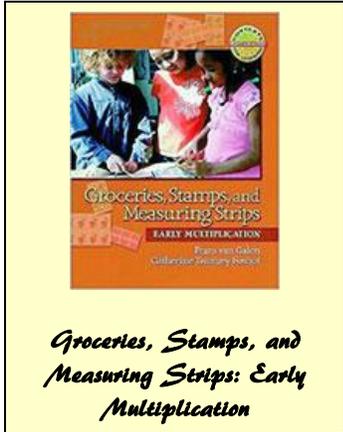
Related Read-Aloud

Grade Three



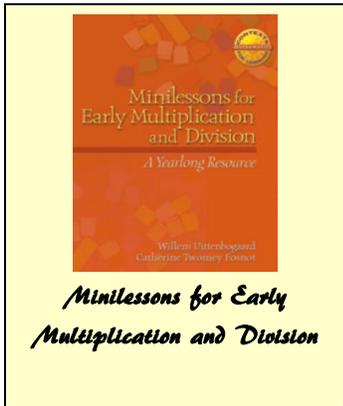
*Minilessons for Extending
Addition and Subtraction*

A resource of minilessons using strings of related problems for addition and subtraction. In grade 3 use as needed to strengthen addition and subtraction strategies within 1000. It's also a helpful resource for work with small guided groups. Use this as a resource in the fall to do computation work every day as needed and then go to the minilessons for early multiplication resource.



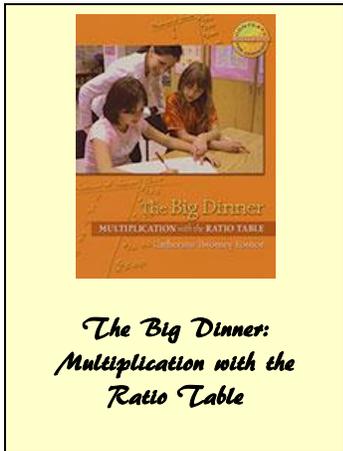
Grade Three

Introduces multiplication by building sequentially from repeated addition to partial products on the open number line and builds strategies for automaticity of the basic facts. If multiplication was not introduced in grade 2, it should be used in grade 3 in the beginning of the year. It can be skipped if it was used in the previous year.



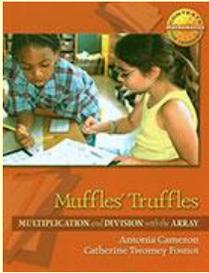
Grade Three

A resource of strings of related problems. Crafted more tightly than number “talks,” number “strings” ensure the development of numeracy and fluent computation because of the way they are crafted. Use throughout grade 3 to work towards automaticity of the basic multiplication facts.



Grade Three

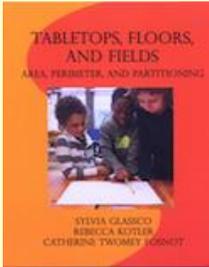
Introduces the ratio table as a powerful tool for multiplicative reasoning and lays a foundation for the development of proportional reasoning and the use of partial products. This unit can also be used in grade 4.



*Muffles' Truffles:
Multiplication and Division
with the Array*

Grade Three

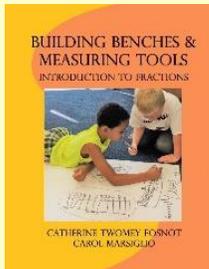
Develops the open array model, which can be used as a powerful tool to support the development of partial products and the distributive, commutative, and associative properties.



*Tabletops, Floors, and
Fields: Area, Perimeter,
and Partitioning*

Grade Three

Designed to promote mathematical inquiry on area and perimeter by decomposing and rearranging, and to support students' growing understanding of the properties of multiplication.



*Building Benches:
Introducing Fractions*

Grade Three

Landmark fractions are introduced in the context of measurement. As students work to determine the overall length of benches they are faced with units that need to be decomposed into fractional pieces.

**Number
Detectives:
Patterns and
Functions**

*Number Detectives: Patterns
and Functions*

Grade Three

Multiplication and division patterns are explored as well as early functions.

Slated for Fall 2018

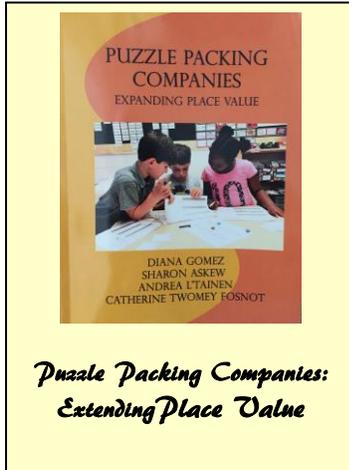
**Sharks and
Other Sea
Creatures:
Data
Representation
and Analysis**

*Sharks and Other Sea
Creatures: Data
Representation and Analysis*

Grade Three

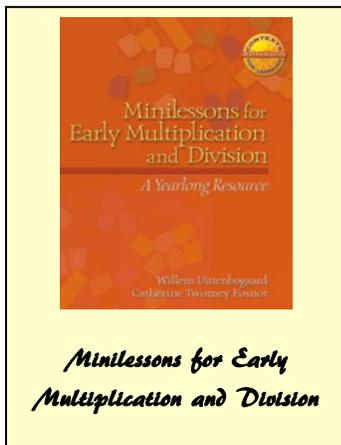
Coming Soon (early November, 2018).

GRADE FOUR UNITS



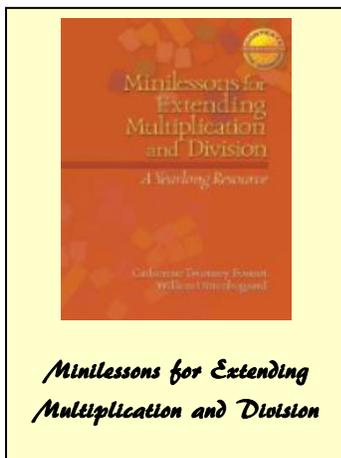
Grade Four

Fosters multiplication and division by powers of ten, the use of subtraction and addition algorithms based on place value within 100,000 and prepares the way for place value to 1,000,000.



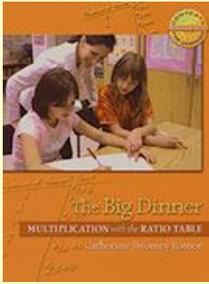
Grade Four

A resource of strings of related problems. Crafted more tightly than number “talks,” number “strings” ensure the development of numeracy and fluent computation because of the way they are crafted. Can be used in grade 4 with children who still need work on getting the basic facts automatic. Use if needed with small guided groups.



Grade Four

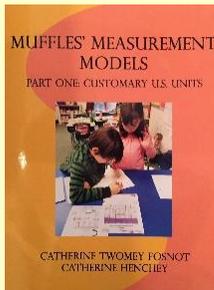
A resource of strings of related problems to develop strategies for multiplication and division with 2- and 3-digit numbers. More powerful than just number “talks,” number “strings” ensure the development of numeracy and fluent computation. Use throughout grades 4 and 5 for fluency.



*The Big Dinner:
Multiplication with the
Ratio Table*

Grade Four

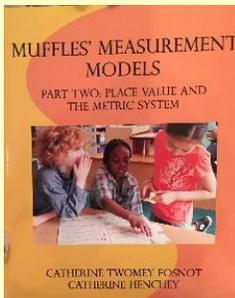
Introduces the ratio table as a powerful tool for multiplicative reasoning and lays a foundation for the development of proportional reasoning and the use of partial products. If previously used in Grade 3, just change the dinner to a 12-pound ham at \$1.25 per pound, cooked at 15 minutes per pound. Provide different vegetables on the charts. If it was not used in grade 3, it is very appropriate for grade 4.



*Muffles' Measurement
Models: U.S. Customary
Units*

Grade Four

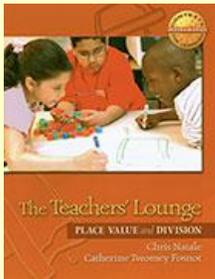
This unit is the first of two related, companion units for grade 4. Muffles (of *Muffles' Truffles*) returns, expands his business, and several problems arise as he tries to convert the measurements in his recipes to make bigger batches of truffles. Children are asked to select and use an appropriate measurement unit, to compare and relate the measurements, to construct the need for decomposition of units into smaller units, and to use operations to convert within the system. The models used throughout are the double number line for equivalence and the ratio table for scaling and proportional reasoning.



*Muffles' Measurement
Models: Place Value and
the Metric System*

Grade Four

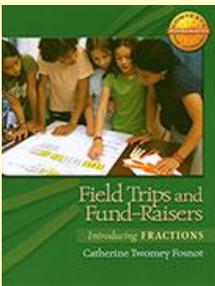
This unit is Part Two of the measurement sequence for grade 4. Ratio tables and double number lines are used to develop conversions within the Metric System. The context also deepens students' understanding of place value.



*The Teachers' Lounge:
Place Value and Division*

Grade Four

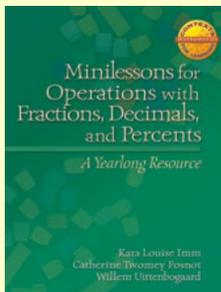
This unit emphasizes place value and the distributive property as they relate to division. Partitive and quotative situations are examined, as well as division with remainders.



*Field Trips and Fund-
Raisers: Fractions*

Grade Four

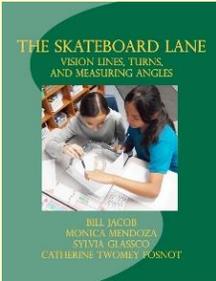
This unit develops the connection of fractions to division and employs the use of various fraction models (fair-sharing, part/parts, bar, and area models).



*Minilessons for Fractions,
Decimals, and Percents*

Grade Four

A resource book for doing minilessons with strings of related problems. More powerful than just number “talks,” number “strings” ensure the development of numeracy and fluent computation. In grade 4, just use the first part of the guide where coins and clocks are used as models.



THE SKATEBOARD LANE
VISION LINES, TURNS,
AND MEASURING ANGLES

BILL JACOB
MONICA MENDOZA
SIVIA GIARSCU
CATHERINE TWOMEY HOSNOT

*The Skateboard Lane:
Vision Lines, Turns, and
Measuring Angles*

Grade Four

Part One of a two-unit sequence on angles. As students explore vision lines in a skateboard park, they are faced with the dilemma of how to measure the angles they make when they turn from one vision line to another. Students make measurement tools and are introduced to the protractor.

**Gardens and
Growth
Patterns:
Data
Representation
and Analysis**

*Gardens and Growth
Patterns: Data
Representation and Analysis*

Grade Four

(coming soon, November 2018)

**The Knight's
Table:
Tessellations,
Interior Angles,
and Symmetry**

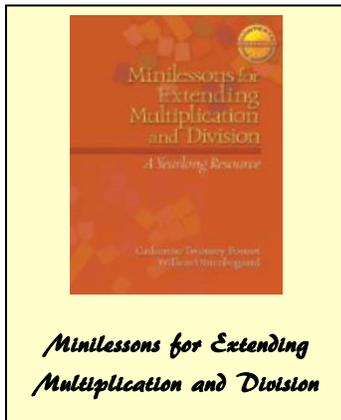
*The Knight's Table:
Tessellations, Interior
Angles, and Symmetry*

Grade Four

Part Two of a two-unit sequence on angles. As students explore shapes and make designs for tabletops, they are faced with the challenges of exploring which polygons tessellate and how the interior angles of the polygons are involved. In the second week of the unit their designs bring them into explorations with symmetry.

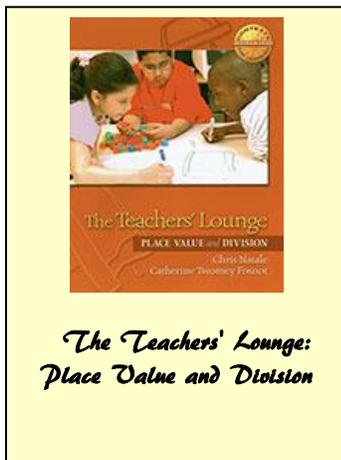
(coming soon, November 2018)

GRADE FIVE UNITS



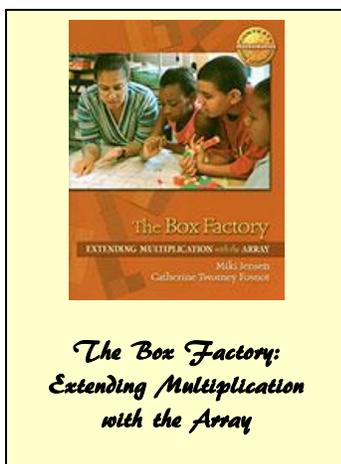
Grade Five

A resource of strings of related problems to develop strategies for fluent multiplication and division with 2- and 3-digit numbers. More powerful than just number “talks,” number “strings” ensure the development of numeracy and fluent computation. Use throughout grades 4 and 5 for fluency.



Grade Five

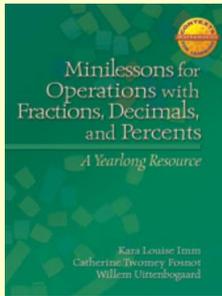
Emphasizes place value and the distributive property as they relate to division. Partitive and quotative situations are examined, as well as division with remainders. If this unit was not used in grade 4, use it in the beginning of the year (Sept), then keep doing Minilessons (from the Extending Multiplication and Division resource) throughout the fall and in small groups if necessary to get these operations efficient and fluent. The unit can also be used to bridge from partial quotients to the standard long division algorithm.



Grade Five

Develops the associative property, factoring, the area formula for rectangles and the relationship between surface area and volume in rectangular prisms.

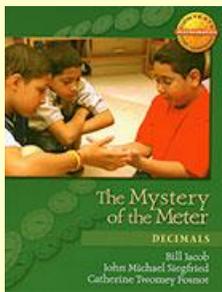
Grade Five



*Minilessons for Fractions,
Decimals, and Percents*

A resource book for doing minilessons with strings of related problems. More powerful than just number “talks,” number “strings” ensure the development of numeracy and fluent computation. This unit may have been used in grade 4, but only the beginning portion with clocks and coins. In grade 5, use the complete resource to work on all four operations with fractions.

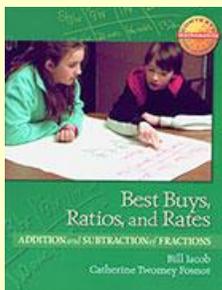
Grade Five



*The Mystery of the Meter:
Decimals*

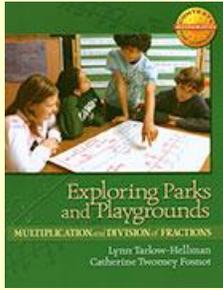
Provides an important multiplicative treatment of decimals by introducing the analog electric meter to emphasize place value, powers of ten, and equivalence.

Grade Five



*Best Buys, Ratios, and
Rates: Addition and
Subtraction of Fractions*

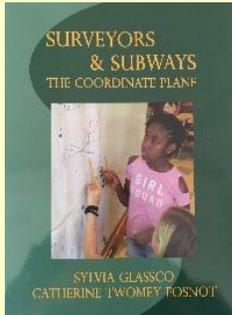
Develops fraction equivalence and proportional reasoning and generates the double open number line model for addition and subtraction of fractions.



Exploring Parks and Playgrounds: Multiplication and Division of Fractions

Grade Five

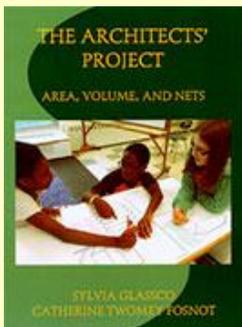
Focuses on multiplication and division of fractions by fractions. The open number line, array and ratio table models are used throughout to develop fluency.



Subways and Surveyors: The Coordinate Plane

Grade Five

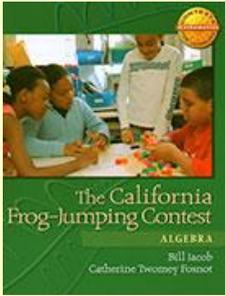
A grid system is introduced as a measurement tool for surveyors. At first only the first quadrant of the coordinate plane is used, but students very naturally extend it to include all 4 quadrants as they design subway tracks to get to city landmarks.



The Architects' Project: Area, Volume, and Nets

Grade Five

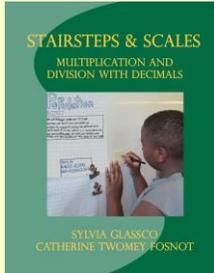
Develops area formulas for various polygons and volume formulas for various prisms. The relationship between surface area and volume of prisms is also explored. This unit aligns best with grade 6, but is a nice challenge to develop area, volume, surface area of prisms with 5th graders.



*The California Frog
Jumping Contest: Algebra*

Grade Five

Uses the open number line to develop symbolizing with variables and treating equivalent algebraic expressions as interchangeable objects for solving for unknowns in linear equations.



*Stairsteps and Scales:
Multiplication and Division
with Decimals*

Grade Five

Strengthens a multiplicative understanding of place value and supports efficient multiplication and division of decimals.

**Predictions
about Battery
Life: Mean,
Mode, and
Median**

*Predictions about Battery
Life: Mean, Mode, and
Median*

Grade Five

Slated for winter 2019