

CHAPTER 3

Content & Planning

Most students enter grade 3 with enthusiasm for, and interest in, learning mathematics. ... They find it practical and believe that what they are learning is important. If the mathematics studied in grades 3–5 is interesting and understandable, the increasingly sophisticated mathematical ideas at this level can maintain students' engagement and enthusiasm. But if their learning becomes a process of simply mimicking and memorizing, they can soon begin to lose interest. Instruction at this level must be active and intellectually stimulating and must help students make sense of mathematics.

NCTM, 2000

Expectations for Third Graders' Mathematical Development

The National Council of Teacher of Mathematics defines three central mathematical themes for the 3–5 grade band: multiplicative reasoning, equivalence, and computational fluency.

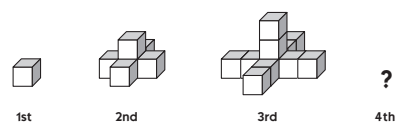
When students enter third grade, they should have a solid grasp of additive reasoning and be able to add and subtract whole numbers using chunks of numbers and landmark numbers rather than counting one by one. Beginning in third grade, *multiplicative reasoning* should become a focus. Multiplicative reasoning involves more than the ability to multiply and divide. It's about understanding that our base ten number system has a multiplicative structure. For instance, the number 329 is really $(3 \times 100) + (2 \times 10) + (9 \times 1)$ as well as one collection of 329 objects. As students build geometric models, they can use multiplicative reasoning to find the area of 2-dimensional shapes like rectangular arrays and the volume of 3-dimensional solids like rectangular prisms.

Thinking algebraically, students use multiplicative reasoning to search for generalized patterns that will provide the foundations for proportional reasoning in the middle grades. T-charts, like the example on the next page, are a good way to organize information to show how two variable quantities are related. At the beginning of third grade, most students will complete the table using additive reasoning, figuring out the difference between each arrangement and adding on to create each new element in the sequence. Although this is an accurate way to complete the table, it is not as efficient as using multiplicative reasoning.

Overhead 1.10 For use in Unit One, Session 7.

Cube Growing Patterns

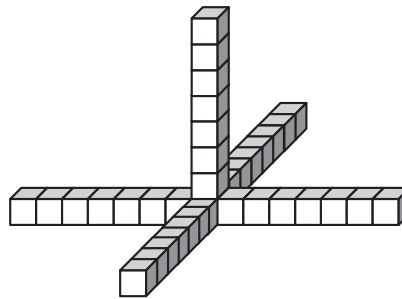
Pattern 1



1st 2nd 3rd 4th

Arrangement Number	Total Cubes
1	1
2	6
3	11
4	16
5	21
6	26
7	31
8	
9	
10	

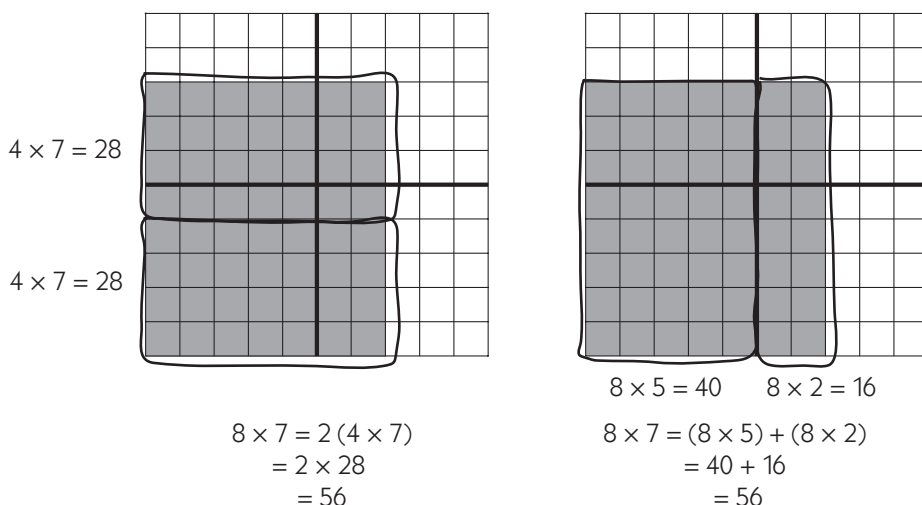
Ravi How many cubes would be in the 8th arrangement? Hmmm. Well, 21 plus 5 equals 26, 26 plus 5 equals 31, and 31 plus 5 equals 36. (additive reasoning)



Maria I think the 8th arrangement will have 5 arms with 7 cubes in each arm, plus the one cube in the center you can't see. So you go 7 times 5 plus 1. That's 35 plus 1, which is 36. (multiplicative reasoning)

Jamal Also, you can times the arrangement number by 5 and subtract 4. So 5 times 5 is 25, minus 4 is 21. That's how many cubes in the 5th arrangement. So for the 8th, it's 8 times 5 minus 4. That's 40 minus 4: 36 cubes. (multiplicative reasoning)

Students' ability to recognize, create, and use equivalent representations of numbers and geometric objects should increase between grades 3 and 5. Examining *equivalence* helps students develop efficient strategies for computing and solving problems. For example, a student who does not know the product of 8×7 could use what she knows about the properties of multiplication to generate equivalent representations of 8×7 in order to compute the product in a variety of ways. Two possible strategies are shown on the next page using the area model, which is used extensively in third grade.



In third grade, we focus on *computational fluency* with whole numbers. In later grades, students focus on becoming fluent at computing with fractions and decimal numbers. Fluency refers to having efficient, accurate, and generalized methods for computing that are based on well-understood properties and number relationships. When students' computational fluency is based on a solid grasp of number properties and relationships, they view algorithms as tools for solving problems rather than the goal of mathematics study. Students who are computationally fluent perform calculations mentally or use paper-and-pencil sketches, numbers, or algorithms depending on the problem. Computational fluency is enhanced by students' use of estimation strategies to judge the reasonableness of their solutions.

All three themes—multiplicative reasoning, equivalence, and computational fluency—increase in complexity throughout the grade band and reappear in each of the five content strands: number and operations, algebraic thinking, geometry, measurement, and data analysis and probability. Your students will have an opportunity to construct an understanding of the following concepts and skills in the five content strands through a variety of models and experiences. The descriptions below are meant as a guide: not all of your students will master each and every concept and skill by the end of the year, and your state standards and benchmarks will provide more specific guidance about your community's expectations for third graders' mathematical learning.

Computation & Number

By the end of third grade, most children will have a solid understanding of addition, subtraction, multiplication, and our place value structure. They will be efficient and accurate with their strategies for adding and subtracting 2- and 3-digit numbers, with and without regrouping. Students will also count collections of bills and coins up to \$10 and round decimal quantities to the nearest tenth.

Algebraic Thinking

Third graders' understanding of patterns will broaden to include not only repeating but also growing sequences of numbers and shapes. They will extend number patterns that involve adding or multiplying a single-digit number such as 3, 6, 9, 12 (add 3 to generate each new number) or 2, 6, 18, 54 (multiply by 3 to generate each new number). Given a simple relationship between two quantities, they'll determine one quantity when given the other. For example, if students know there are 4 legs for each dog, they will determine there are 6 dogs if there are 24 legs. Students will use patterns to make predictions and solve problems, and translate situations into tables, charts, and numerical expressions and equations.

Geometry

The movement in third grade geometry is toward describing and comparing 2- and 3-dimensional shapes in terms of their attributes and properties. When looking at a rectangle, a beginning kindergartner might comment that the shape looks like a door. A second grader may also mention that it looks like a door or a window, but should also be able to explain that it has 4 corners, 4 straight sides, and 2 pairs of equal sides. A third grader might say that the rectangle is a quadrilateral with 2 sets of parallel sides and 4 right angles (90 degrees each). By the end of third grade, students will have had enough spatial experiences to combine and subdivide 2- and 3-dimensional shapes with confidence, and to explore the effects of transformations (flips, slides, and rotations).

Measurement

In the years up to and including third grade, students progress from comparing objects to measuring them in standard units. Third graders will select the most appropriate tool and unit (U.S. customary or metric) to measure length, weight or mass, capacity (volume), and time. They will make reasonable estimates for the object being measured and carry out basic conversions between familiar units.

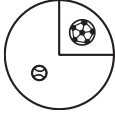
Data Analysis & Probability

Third graders will read and interpret a wide variety of graphs, including those in which each cell represents more than one unit. They will draw conclusions and make predictions from these graphic displays. They will find the mode (most common value), range, median, and mean of a data set. By the end of the year, third graders will construct line plots, Venn diagrams, and pie and bar graphs. Finally, we anticipate third graders will move beyond the magical beliefs of 5- and 6-year-olds about probability to the understanding that likely and unlikely outcomes depend on initial conditions, at least in the long run.

NAME _____ DATE _____

Sports Spinner Record Sheet Spinner 1

1 You are going to spin the first spinner 24 times. Color in the graph below to show what you think will happen. How many times will it land on each item?



⚾																							
⚽																							

2 We predict that the spinner will land on the baseball _____ times out of 24 and on the soccer ball _____ times out of 24.

3 We think it will turn out this way because: _____

4 Spin the spinner 24 times and record your results on the graph below.

⚾																							
⚽																							

5 The spinner landed on the baseball _____ times out of 24 and on the soccer ball _____ times out of 24.

Baseline 6.15 for use in Unit 5, Session 16. Spinners set below recorded with Baseline 6.16.

Kindergarten *I like baseball the best, so I think it will win!*

First Grade *That soccer ball is bigger than the baseball so it will win.*

Second Grade *The baseball won a lot of times so far, so I think it will win now.*

Third Grade *The soccer ball is only a fourth of the spinner. The baseball is three-fourths. I think the baseball will win because it has a better chance.*

Correlation to NCTM Standards

The chart below shows how the expectations for third graders' mathematical learning, based on the NCTM standards, are met throughout the year in Grade 3 *Bridges*. You'll notice that the process standards are an integral part of the *Bridges* curriculum. See appendix 1.3 for more information about the five process standards.

CORRELATIONS TO NCTM STANDARDS										
	Content Standards					Process Standards				
	NUMBER & OPERATIONS	ALGEBRA	GEOMETRY	MEASUREMENT	DATA ANALYSIS & PROBABILITY	PROBLEM SOLVING	REASONING & PROOF	COMMUNICATION	CONNECTIONS	REPRESENTATION
▼ 1–2 Lessons ◆ 3–4 Lessons ○ 5–9 Lessons □ 10+ Lessons										
UNITS										
Unit 1 Computation, Algebraic Thinking & Probability	□	○	▼	◆	◆	□	□	□	□	□
Unit 2 Place Value Structures & Multi-Digit Computation	□	▼	▼	◆	◆	□	□	□	□	□
Unit 3 Two- & Three-Dimensional Geometry	▼	▼	□	▼	◆	□	□	□	□	□
Unit 4 Multiplication & Division Patterns & Concepts	□	○	▼	◆	○	□	□	□	□	□
Unit 5 Place Value & Computation with Larger Numbers	□	◆	▼	◆	○	□	□	□	□	□
Unit 6 Money, Fractions, & Probability	□	◆	◆	◆	○	□	□	□	□	□
Unit 7 Three-Dimensional Geometry, Multiplication & Data Analysis	○	▼	○	◆	○	□	□	□	□	□
Unit 8 Bridge Design & Construction: Data Collection & Analysis	○	▼	◆	○	○	□	□	□	□	□
NUMBER CORNER										
August & September	□	○	▼	□	▼	□	□	□	□	□
October	□	○	○	○	○	□	□	□	□	□
November	□	○	□	○	○	□	□	□	□	□
December	□	○	○	○	○	□	□	□	□	□
January	□	○	▼	○	○	□	□	□	□	□
February	□	○	▼	▼	○	□	□	□	□	□
March	□	○	□	○	○	□	□	□	□	□
April	□	○	▼	▼	□	□	□	□	□	□
May & June	□	○	▼	▼	□	□	□	□	□	□

An Overview of the Mathematics in Third Grade *Bridges*

In order to help students reach these goals by the end of third grade, *Bridges* offers a clearly articulated program that begins in kindergarten, continues through first and second grades, and moves into third with common models, teaching strategies, and objectives. The major mathematical concepts are covered in seven units, while an eighth thematic unit on bridge construction provides an opportunity for students to apply what they've learned to scientific exploration.

While the units are organized by theme or concept, the Number Corner workouts change each month. Each month's workouts are carefully designed to complement the work students are doing in the units. The daily Number Corner workouts provide students ongoing practice with basic skills, allowing teachers to devote plenty of time to in-depth investigations of mathematical topics in the units. In fact, many of the workouts focus on skills like telling time, reading thermometers, and counting money that are covered more lightly, and sometimes not at all, in the units. The lessons in both the units and Number Corner are essential and together help students and teachers meet the expectations for third grade mathematics described on the previous pages. The chart below provides a brief summary of mathematical content.

BRIEF OVERVIEW OF YEARLONG CONTENT	
Units	Number Corner Workouts
<p>Teachers Guide, Volume One</p> <p>Unit 1: Computation, Algebraic Thinking & Probability</p> <p>Unit 2: Place Value Structures & Multi-Digit Computation</p> <p>Teachers Guide, Volume Two</p> <p>Unit 3: Two- and Three-Dimensional Geometry</p> <p>Unit 4: Multiplication & Division Patterns & Concepts</p> <p>Unit 5: Place Value & Computation with Larger Numbers</p> <p>Teachers Guide, Volume Three</p> <p>Unit 6: Money, Fractions & Probability</p> <p>Unit 7: Three-Dimensional Geometry, Multiplication & Data Analysis</p> <p>Unit 8: Bridge Design & Construction: Data Collection & Analysis</p>	<ul style="list-style-type: none"> • developing fluency with basic addition, subtraction, and multiplication facts • calculating and estimating with multi-digit numbers • identifying and comparing fractions • counting money and making change • telling time and figuring elapsed time • reading thermometers • identifying geometric shapes and properties • collecting data and interpreting graphs • conducting and interpreting probability experiments • analyzing and extending patterns

The chart on the following pages provides a more detailed synopsis of the mathematical content of all eight units, including the Problems & Investigations, Work Places, assessments, and Home Connections. In addition, the chart gives a brief synopsis of the mathematical topics covered in the months of Number Corner—including the workouts, assessments, and support activities—that correspond to each unit.

GRADE 3 YEARLONG CONTENT SYNOPSIS	
UNIT 1—20 SESSIONS	AUGUST & SEPTEMBER NUMBER CORNER
Unit 1: Computation, Algebraic Thinking & Probability	August & September Workouts
<p>Problems & Investigations</p> <ul style="list-style-type: none"> • sorting and classifying • growing patterns • computation of and strategies for addition and subtraction facts to 20 • probability • linear measurement (inches) <p>Work Places</p> <p>1A Make the Sum developing fluency with basic addition facts</p> <p>1B Growing Patterns identifying and extending growing visual patterns</p> <p>1C Addition Facts Challenge developing fluency with basic addition facts</p> <p>1D Calculator Patterns using the calculator to extend number patterns</p> <p>1E Estimate, Measure & Compare Inches estimating and measuring length in inches</p> <p>1F Tens or Ones developing fluency with the take away tens and runaway ones subtraction facts</p> <p>1G Count & Compare Up to Ten developing fluency with the up to ten subtraction strategy</p> <p>1H Blast Off to Space developing fluency with basic subtraction facts</p> <p>Assessments</p> <p>Work Sample from Work Place 1B, Growing Patterns (Session 11)</p> <p>Addition Fluency Checkup 1 (Session 13)</p> <p>Addition & Subtraction Stories (Session 19)</p> <p>Home Connections</p> <p>1 Solving Addition Facts Book strategies for basic addition facts</p> <p>2 Addition Facts Challenge practice of basic addition fact strategies</p> <p>3 Spin & Add practice of basic addition fact strategies</p>	<p>Calendar Grid measuring devices and units</p> <p>Numbers Grid skip counting and mental computation with 1- and 2-digit numbers</p> <p>Magnetic Board adding and subtracting odd and even numbers, fact families</p> <p>Clocks, Coins & Bills collections of mixed coins</p> <p>Computational Fluency addition facts to and from 20</p> <p>Assessment</p> <p>Baseline Assessment (optional)</p> <p>extending shape patterns, identifying and comparing 2- and 3-D geometric shapes, basic addition and subtraction, selecting the appropriate unit to measure an item, telling time on an analog clock, counting mixed coin collections</p>

GRADE 3 YEARLONG CONTENT SYNOPSIS	
UNIT 2—30 SESSIONS	OCTOBER & NOVEMBER NUMBER CORNER
<p>Unit 2: Place Value Structures & Multi-Digit Computation</p> <p>Problems & Investigations</p> <ul style="list-style-type: none"> • place value • computation of and strategies for addition and subtraction of 2- and 3-digit numbers • estimation • linear measurement (centimeters) <p>Work Places</p> <p>2A Base Five Spin & Add adding, regrouping, and using place value notation for numbers in base five</p> <p>2B Up to the Mat & Back regrouping and decomposing numbers in base five</p> <p>2C Estimate, Measure & Compare Centimeters estimating and measuring length in centimeters</p> <p>2D Round Ball Tens rounding to the nearest ten</p> <p>2E Pick 2 estimating and computing sums of 2-digit numbers</p> <p>2F Count & Compare Money counting and comparing collections of mixed coins and bills</p> <p>2G Numbers on a Line using landmark numbers on a number line to find the difference between 2-digit numbers</p> <p>2H Anything but Five adding and subtracting single- and double-digit numbers</p> <p>2I Undercover adding and subtracting 2- and 3-digit numbers</p> <p>2J Shop & Save adding and subtracting money amounts up to \$5 expressed in decimal notation</p> <p>2K Speedway 500 adding and subtracting 2- and 3-digit numbers</p> <p>Assessments</p> <p>Place Value Pre- & Post-Assessment (Sessions 12 & 30)</p> <p>Addition Fluency Checkup 2 (Session 4)</p> <p>Subtraction Fluency Checkups 1 & 2 (Sessions 11 & 21)</p> <p>Computational Fluency Interview (Session 28, optional)</p> <p>Home Connections</p> <p>4 Blast Off to Space practice of basic subtraction fact strategies</p> <p>5 Solving Subtraction Facts strategies for basic subtraction facts</p> <p>6 Up to Ten practice with the up to ten strategy for solving basic subtraction facts</p> <p>7 Three Turns to Win addition and subtraction of money amounts up to \$3</p> <p>8 An Hour or Bust to the Minute telling time and determining elapsed time to the minute</p> <p>9 Pick Two estimation and computation with 2-digit numbers</p>	<p>October Workouts</p> <p>Calendar Grid dimensions and areas of rectangular arrays</p> <p>Numbers Grid counting patterns and computation (addition, subtraction, and multiplication)</p> <p>Magnetic Board dimensions and areas of rectangular arrays</p> <p>Clocks, Coins & Bills time to the minute</p> <p>Data Collector sampling experiment</p> <p>Computational Fluency subtraction facts from 20</p> <p>Assessment</p> <p>Number Corner Checkup 1</p> <p>basic addition and subtraction, counting mixed coins, extending number patterns, determining the appropriate device for measuring an item, calculating elapsed time</p> <p>Support Activities</p> <p>1 Doubles Spin basic addition facts: doubles</p> <p>2 Spinning Around Addition strategies for basic addition</p> <p>3 Triple Spin & Add basic addition</p> <p>4 Sorting Addition Facts strategies for basic addition</p> <p>5 Make Half basic subtraction facts: half facts</p> <p>6 Spinning Around Subtraction strategies for basic subtraction</p> <p>November Workouts</p> <p>Calendar Grid polygons, angles, symmetry, congruence</p> <p>Numbers Grid counting patterns and computation (addition, subtraction, and multiplication)</p> <p>Magnetic Board subtracting 2-digit numbers</p> <p>Clocks, Coins & Bills elapsed time</p> <p>Data Collector read and record temperature in Fahrenheit and Celsius</p> <p>Computational Fluency addition and subtraction with 2-digit numbers</p>

GRADE 3 YEARLONG CONTENT SYNOPSIS	
UNIT 3—15 SESSIONS	DECEMBER NUMBER CORNER
<p>Unit 3: Two- & Three-Dimensional Geometry</p> <p>Problems & Investigations</p> <ul style="list-style-type: none"> • classifying and sorting 2-D and 3-D shapes • transformations (flips, slides, and turns) • congruence • symmetry • angles <p>Work Places</p> <p>3A Sort & Classify Shapes classifying 2- and 3-dimensional shapes by specific attributes</p> <p>3B Tangram Polygons combining and dividing polygons to create other polygons</p> <p>3C Geoboard Polygons applying an understanding of geometric terms to draw and classify polygons</p> <p>3D Shape Bingo classifying 2- and 3-dimensional shapes by specific attributes</p> <p>Assessment</p> <p>Subtraction Fluency Checkup 3 (Session 10)</p> <p>Ten Items in a Bag Post-Assessment: Constructed Journal Response (Session 15)</p> <p>Home Connections</p> <p>10 Anything but Five practice of basic addition and subtraction strategies and subtraction of 2-digit numbers</p> <p>11 Centimeter Measure estimation and measurement with centimeters and subtraction of 2- and 3-digit numbers</p> <p>12 Angles Search identification of right, acute, and obtuse angles, and estimating sums of 2-digit numbers</p>	<p>December Workouts</p> <p>Calendar Grid temperature, Fahrenheit and Celsius scales, appropriate dress and activities</p> <p>Numbers Grid place value and computation with 2- and 3-digit numbers</p> <p>Magnetic Board fractions as parts of a set</p> <p>Clocks, Coins & Bills elapsed time</p> <p>Data Collector read and interpret graphs</p> <p>Computational Fluency dimensions and areas of rectangular arrays</p>

GRADE 3 YEARLONG CONTENT SYNOPSIS	
UNIT 4—24 SESSIONS	JANUARY NUMBER CORNER
Unit 4: Multiplication & Patterns & Concepts	January Workouts
<p>Problems & Investigations</p> <ul style="list-style-type: none"> • multiplication facts with factors to 10 • division as a concept • area • algebraic patterns and functions • weight measurement (ounces and pounds) <p>Work Places</p> <p>4A Loops & Groups using the grouping model to multiply 1-digit numbers</p> <p>4B Array Challenge using the array model to multiply 1-digit numbers</p> <p>4C Cover Up using the array model to multiply 1-digit numbers</p> <p>4D Estimate, Measure & Compare Ounces & Pounds estimating and measuring weight with ounces and pounds</p> <p>4E Solving Game Store Problems using a variety of strategies to solve multiplication story problems</p> <p>4F Count & Compare Multiplication understanding multiplication as skip counting, repeated addition, arrays, and equal groups</p> <p>4G Scout Them Out applying specific strategies to solve basic multiplication facts and think about division facts</p> <p>4H Don't Break 100 using the array model to multiply 1-digit numbers</p> <p>Assessments</p> <p>Multiplication & Division Pre- & Post-Assessment (Sessions 1 & 24)</p> <p>Multiplication Fluency Checkups 1 & 2 (Sessions 11 & 21)</p> <p>Home Connections</p> <p>13 Loops & Groups practice of basic multiplication fact strategies and 2-digit addition</p> <p>14 Array Challenge practice of basic multiplication fact strategies</p> <p>15 Weight Measures development of referents for ounces and pounds</p> <p>16 Solving Multiplication Facts strategies for basic multiplication facts</p>	<p>Calendar Grid time to the minute, elapsed time</p> <p>Numbers Grid addition, subtraction, and multiplication with 3-digit round numbers</p> <p>Magnetic Board fractions as parts of whole (area)</p> <p>Clocks, Coins & Bills money story problems</p> <p>Data Collector read and record temperature in Fahrenheit and Celsius</p> <p>Computational Fluency addition and subtraction of 3-digit numbers</p> <p>Assessment</p> <p>Number Corner Checkup 2</p> <p>addition and subtraction of 2- and 3-digit numbers, estimating and rounding money amounts, adding and subtracting money amounts, counting mixed coins and bills, reading and interpreting a bar graph</p> <p>Support Activities</p> <p>7 Make 100 2-digit addition</p> <p>8 Race to 100 & Back 2-digit addition and subtraction</p> <p>9 Three Turns to Win addition of money amounts to \$5</p> <p>10 Finish with \$4 addition and subtraction of money amounts to \$4</p>

GRADE THREE YEARLONG CONTENT SYNOPSIS	
UNIT 5—20 SESSIONS	FEBRUARY NUMBER CORNER
Unit 5: Place Value & Computation with Larger Numbers	February Workouts
<p>Problems & Investigations</p> <ul style="list-style-type: none"> • place value to ten thousands • computation of and strategies for 3- and 4-digit addition and subtraction • estimating • rounding • landmark numbers • mass measurement (grams, kilograms) <p>Work Places</p> <p>5A Make 200 adding 2- and 3-digit numbers</p> <p>5B Sum It Up composing and decomposing numbers by place value and adding 3-digit numbers</p> <p>5C Estimate, Measure & Compare Grams estimating and measuring mass in grams</p> <p>5D Pick 2 Subtraction estimating and computing the difference between 2- and 3-digit numbers</p> <p>5E Larger Numbers on a Line using landmark numbers on a number line to find the difference between 3-digit numbers</p> <p>5F Quad Spin & Win composing and decomposing numbers by place value to the thousands</p> <p>5G Count & Compare Place Value composing, rounding, and comparing 3-digit numbers</p> <p>5H Roll & Subtract 1000 subtracting 3-digit numbers from 1000</p> <p>Assessments</p> <p>Working with Larger Numbers Pre- & Post-Assessment (Sessions 1 & 20)</p> <p>Multiplication Fluency Checkup 3 (Session 9)</p> <p>Home Connections</p> <p>18 Multiplication Draw practice of basic multiplication fact strategies</p> <p>19 Round Ball Hundreds practice of basic multiplication fact strategies using a variety of models for multiplication</p> <p>20 Make 200 rounding 3-digit numbers to the nearest hundred</p> <p>21 Travel Miles 2- and 3-digit addition and subtraction strategies</p>	<p>Calendar Grid value of and difference between coin collections</p> <p>Numbers Grid place value and computation with 3-digit numbers</p> <p>Magnetic Board value of coin collections, minimal collections of money amounts</p> <p>Clocks, Coins & Bills change from \$1 and \$5</p> <p>Data Collector read and interpret tables and graphs</p> <p>Computational Fluency multiplication facts with factors to 10</p>

GRADE 3 YEARLONG CONTENT SYNOPSIS	
UNIT 6—18 SESSIONS	MARCH NUMBER CORNER
<p>Unit 6: Money, Fractions & Probability</p> <p>Problems & Investigations</p> <ul style="list-style-type: none"> • fractions • decimals in the context of money • probability and data analysis • capacity measurement (cups, pints, quarts, and gallons) <p>Work Places</p> <p>6A Make Change making change from \$5</p> <p>6B Estimate, Measure & Compare Cups & Quarts estimating and measuring capacity in cups and quarts</p> <p>6C Fraction Bingo identifying a variety of models for common fractions</p> <p>6D Sports Spinners experimenting with probability using spinners</p> <p>6E Pull & Graph using fractions to express and analyze the results of sampling experiments</p> <p>Assessments</p> <p>Money, Fractions & Probability Pre- & Post-Assessment (Sessions 2 & 18)</p> <p>Home Connections</p> <p>22 Movies & Popcorn addition and subtraction with money amounts up to \$10</p> <p>23 Make a Gallon, Spill a Gallon exploration of the fractional relationships between cups, pints, quarts, and gallons</p> <p>24 Quad Spin & Win place value concepts with 4-digit numbers</p> <p>25 Probability Spinners exploration of spinner probability and construction of bar graphs</p>	<p>March Workouts</p> <p>Calendar Grid 3-D objects in the environment</p> <p>Numbers Grid addition, subtraction, and multiplication with round 3- and 4-digit numbers</p> <p>Magnetic Board computation with 2- and 3-digit numbers</p> <p>Clocks, Coins & Bills elapsed time</p> <p>Data Collector measurement, data recording, and perimeter</p> <p>Computational Fluency multiplication and division, fact families</p> <p>Assessment</p> <p>Number Corner Checkup 3</p> <p>basic multiplication, estimating and computing sums and differences of 2- and 3-digit numbers, place value in 3-digit numbers, elapsed time, calculating the perimeter of a rectangle, identifying 3-dimensional shapes and their faces</p> <p>Support Activities</p> <p>11 Count Down 400 2- and 3-digit subtraction</p> <p>12 Faces of a Solid 3-dimensional geometry</p> <p>13 Spinning Around Multiplication strategies for basic multiplication</p>

GRADE 3 YEARLONG CONTENT SYNOPSIS	
UNIT 7—20 SESSIONS	APRIL NUMBER CORNER
Unit 7: Three-Dimensional Geometry, Multiplication & Data Analysis	April Workouts
<p>Problems & Investigations</p> <ul style="list-style-type: none"> • 1-digit-by-2-digit multiplication • averaging • volume • 3-D geometry • capacity measurement (milliliters and liters) <p>Work Places</p> <p>7A Geoblock Architecture exploring the relationships between faces of 3-dimensional figures</p> <p>7B Estimate, Measure & Compare Milliliters & Liters estimating and measuring capacity in milliliters and liters</p> <p>7C Spin & Multiply multiplying 1- and 2-digit numbers and adding 2- and 3-digit numbers</p> <p>Assessments Geometry, Multiplication & Data Analysis Pre- & Post-Assessment (Sessions 2 & 20)</p> <p>Home Connections</p> <p>26 Buried Treasure description of paths on coordinate grids</p> <p>27 Quick Facts Multiplication practice of basic multiplication fact strategies</p> <p>28 Making a Paper Cup exploration of 2-dimensional shapes and practice of basic multiplication fact strategies</p> <p>29 Spin & Multiply multiplication of 1-digit numbers by 2-digit numbers and 2-digit addition</p>	<p>Calendar Grid common and equivalent fractions</p> <p>Numbers Grid addition, subtraction, and multiplication with round 3- and 4-digit numbers</p> <p>Magnetic Board estimation and computation with money amounts to \$5</p> <p>Clocks, Coins & Bills shopping problems</p> <p>Data Collector probability experiment with spinners</p> <p>Computational Fluency multiplication facts with factors to 10</p>

GRADE 3 YEARLONG CONTENT SYNOPSIS	
UNIT 8 / 15 SESSIONS	MAY & JUNE NUMBER CORNER
Unit 8: Bridge Design & Construction: Data Collection & Analysis	May & June Workouts
<p>Problems & Investigations</p> <ul style="list-style-type: none"> • bridge design and construction • math in the context of scientific research • experimental design • geometric forms in bridges • collection and analysis of data <p>Home Connection</p> <p>30 Looking for Bridges exploration of different kinds of bridge designs</p>	<p>Calendar Grid fractions, decimals, and money</p> <p>Magnetic Board 1-digit by 2-digit multiplication</p> <p>Clocks, Coins & Bills rounding to estimate sums and differences of money amounts</p> <p>Data Collector probability experiment with spinners</p> <p>Computational Fluency addition, subtraction, multiplication, and division</p> <p>Assessment</p> <p>Number Corner Checkup 4</p> <p>2- and 3-digit addition and subtraction, addition and subtraction with decimal money amounts, comparing 3-digit numbers, basic multiplication and division, multiplication of 2- and 3-digit numbers by 1-digit numbers, identifying fractions and equivalent fractions, predicting and reasoning about the outcomes of spinner probability experiments</p> <p>Support Activities</p> <p>14 Show the Sum 3-digit addition</p> <p>15 Show the Difference 3-digit subtraction</p> <p>16 What's Missing? Bingo basic multiplication and division</p> <p>17 Ten to Win basic multiplication</p> <p>18 Make Zero basic addition, subtraction, multiplication, and division</p>