

**BERNARDS TOWNSHIP PUBLIC SCHOOLS
BASKING RIDGE, NEW JERSEY**

MATHEMATICS

Kindergarten

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Basking Ridge, New Jersey

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*This document has been aligned with the
New Jersey Core Curriculum Content Standards*

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education opportunities regardless of color, creed, religion, gender or handicap.*

2008/2009

Mathematics K - 12

In the Bernards Township School District, we envision a K-12 mathematics program that provides all students with access to high quality mathematics instruction that empowers them to better understand the issues of a technological society. There are ambitious expectations for all students, along with provisions for students with different abilities and learning styles. The mathematics curriculum is rich. All students are engaged in worthwhile mathematical tasks that allow them to understand mathematics through a problem-centered, concept-oriented instructional approach.

Goals:

- All students will become effective problem solvers, risk takers, and independent thinkers.
- All students will become mathematically competent, developing fluency with facts and procedures.
- All students will communicate mathematics.
- All students will use technologies and other tools as a means to broaden their understanding about mathematics.
- All students will value mathematics for its practicality and usefulness.
- All students will connect mathematical concepts both within mathematics and between mathematics and other disciplines.

Elementary Mathematics Curriculum Preface

The mathematics program employs a curriculum design that revisits essential skills and concepts. A characteristic of this design is that concepts will be introduced in a variety of contexts over an extended period of time. This design is consistent with current research on long-term memory and learning. True understanding is something developed over time through a process of calling upon prior knowledge and actually extending a concept. In this sense, the program's spiral is addressing the need to develop depth of understanding rather than students mimicking procedures. This program design offers students the opportunities for elaborate rehearsal of important concepts.

Students should be afforded opportunities to evaluate their assessment performance and learn from the process. Assessments should, as much as possible, be diagnostic in nature, not only test oriented. The difference between these two notions is that a test focuses on answers and what students did wrong. This assessment practice does not engage students in a process of evaluating their own work to determine understanding and knowledge. Ultimately mastery based assessments only provide surface information about whether students managed to arrive at a correct or incorrect answer. Diagnostic assessments focus on what students did correctly and what modifications must occur to enhance understanding. This type of assessment does so by engaging students in a metacognitive process or evaluating work in a variety of contexts. In this sense an end-of-unit assessment is only one part of the assessment picture.

This guide shows the alignment of the *Everyday Mathematics* program objectives with the New Jersey Core Content Curriculum Standards for Mathematics. The first four

NJCCC Standards serve as content clusters. They provide student expectations at each grade level. The expectations for the Fifth Standard are intended to address every grade level.

This mathematics curriculum guide provides the teacher with the essential objectives of the curriculum and references the teacher to the unit in the *Everyday Mathematics* Teacher Guide that defines the student activities. Each unit also provides information on planning ideas, on-going assessment, modifications for differentiated instruction, and suggested technology links. Additionally, each unit includes a list of materials (textbooks, workbooks, manipulatives, and resources) required to address the program goals.

Marking Period Pacing Guidelines

Marking Period 1

Section 1

Section 2

Marking Period 2

Section 3

Section 4

Marking Period 3

Section 5

Section 6

Marking Period 4

Section 7

Section 8

Ongoing Daily Routines

The organization of the elementary classroom and the daily routines are important to the students' learning experiences. The "Ongoing Daily Routines" in *Everyday Mathematics* are essential in the implementation of the program. These routines help the teachers to integrate mathematics into the daily classroom activities and provide students with additional opportunities for learning and retaining mathematical skills and concepts. The daily routines must be implemented as part of regular mathematics instruction. The needs and interests of the students in your class may help you decide how much time as well as which routines to include each day. The daily routines also help you to differentiate instruction by posing questions to meet the needs of individual learners. Many of the routines also include suggestions for adding complexity as the school year progresses.

Routine 1 –Number of Day Routine

The students track the number of days in school on a Growing Number Line and represent the number of days with objects.

Routine 2 – Attendance Routine

The students assist in recording and charting daily attendance to practice counting, number writing, data collection, and problem solving skills.

Routine 3 – Job Chart Routine

The students begin to recognize the pattern of job rotation.

Routine 4 - Monthly Calendar Routine

The students learn the days of the week and the months of the year and understand the system of the calendar as they also learn to use associated vocabulary terms.

Routine 5 – Daily Schedule Routine

The students develop an understanding of concepts of time by ordering and sequencing daily activities and classes.

Routine 6 – Weather Observation Routine

The students collect, organize, display, and interpret real, familiar, and interesting data about the weather and look for patterns or trends in the data.

Routine 7 –Temperature Routine

The students collect daily temperature data and discuss trends.

Routine 8- Survey Routine

The students collect, record, display, and discuss data that interest them by surveying their classmates.

See pages 3-35 in the Teacher's Guide to Activities for a detailed description of each Daily Routine.

Items for Display

- ✓ Number Line
 - ✓ Monthly Calendar
 - ✓ Number Grid Poster
 - ✓ Weather/Temperature Recording Chart
 - ✓ Job Chart
 - ✓ Daily Class Schedule
 - ✓ Thermometer
 - ✓ Attendance Chart
 - Thermometer Poster
-
- ✓ Mandatory display item

Section 1

Unit Goals

- Develop counting skills
- Sort by attributes
- Develop patterning skills
- Create relevant graphs
- Explore measurement by comparing lengths and volume
- Establish ongoing math routines

* Key Vocabulary

Unit Objectives, Activities and Assessment

	Objectives	Key Activities	Assessment
1.1	Explore measurement by comparing lengths Use measurement comparison words	Students will use strips of paper to make measurement comparisons. Students will revisit daily routines.	Observe students who can and cannot find their partners. *length, match, compare, bigger, smaller, longer, shorter, same length
1.2	Identify and describe shapes Explore pattern blocks	Students will use pattern blocks to identify basic geometric shapes. Students will revisit daily routines.	*shape, triangle, square, rhombus, trapezoid, hexagon, pattern
1.3	Count objects, sounds, and taps	Students will count and use one-to-one correspondences through multi-sensory activities. Students will revisit daily routines.	Observations of students who can or cannot use one-to-one comparison
1.4	Count backwards by ones Recognize and understand zero as a number for “none” Represent numbers with concrete objects	Students will use counting and singing routines to count backwards to zero in order to associate the number zero with “none.” Students will revisit daily routines.	* none, zero

	Objectives	Key Activities	Assessment
1.5	Use one-to-one correspondence to count objects Recognize and represent numbers with groups of objects	Students will explore the numbers 1-9. Students will revisit daily routines.	Observations of students who can and cannot identify the numbers 1-9 *number, count
1.6	Find ways to sort objects using a variety of attributes Identify attributes	Students will sort objects by attributes. Students will revisit featured numbers for Getting to Know Numbers Activities.	*sort
1.7	Experiment with and compare volumes to develop awareness of relative size	Students will experiment with volume by pouring water, sand, or dry beans from one container to another. Students will revisit the featured number for the Getting to Know Numbers Activities.	*volume, more, less, same
1.8	Construct a bar graph and a moveable graph Make comparisons and answer simple questions based on data from the graphs	Students will create a Birthday Months Graph and an Age Change Graph. Students will revisit the next featured number for Getting to Know Numbers Activities.	*graph, data, total, some, none, all, more, most
1.9	Create and extend patterns with sounds and motions	Students will discover patterns through sound and movement. Students will revisit the next featured number for the Getting to Know Numbers Activities.	*pattern, repeat

	Objectives	Key Activities	Assessment
1.10	Create and extend color patterns Describe patterns	Students will discuss, create and extend color patterns. Students will revisit the next featured number for the Getting to Know Numbers Activities.	Observations of students who can and cannot create and extend a pattern. *pattern, repeat
1.11	Observe coin features and differences among coins Sort coins according to various attributes	Students will sort coins by size, color, markings and other characteristics. Students will revisit the next featured number for the Getting to Know Numbers Activities.	*sort, heads, tails, coins
1.12	Count numbers in sequence Represent numbers with claps or taps	Students will count in sequence by playing <i>Give the Next Number</i> . Students will revisit the next featured number for the Getting to Know Numbers Activities.	Observations of students' accuracy and automaticity as they count
1.13	Construct a pictorial representation of class data Compare heights of objects	Students will compare their body heights to items in the class that are taller, shorter or the same as their height. Students will revisit the next featured number for the Getting to Know Numbers Activities.	Use Body Height Comparison to observe who can and cannot make direct comparisons of length. *longer, shorter, same length, taller, about the same
1.14	Count up to 10 objects Practice reading numerals through 10 Recognize numbers as "5 and some more"	Students will review numbers using Showing and Counting Fingers routines. Students will revisit numeration concepts with counting books.	Use Showing Fingers to observe who can and cannot recognize numerals 1-10 and count up to 10 objects (fingers).

Section 2

Unit Goals

- Explore 2-dimensional shapes
- Reinforce spatial relations vocabulary and concepts
- Introduce the concept of symmetry
- Develop understanding of teen numbers
- Develop counting and numeral recognition skills
- Lay groundwork for number writing through tactile and kinesthetic activities
- Introduce estimation
- Introduce number stories
- Continue patterning, graphing and measurement comparison activities

* Key Vocabulary

Unit Objectives, Activities and Assessment

	Objectives	Key Activities	Assessment
2.1	Find and sort shapes Identify and name shapes Describe attributes of shapes	Students will draw shapes in the air, outline them, describe and name them, and find or draw objects that match the shape. Students will revisit counting to ten and backwards from ten as they play <i>Give the Next Number</i> .	Observations of students who are unable to visually discriminate between shapes * circle, square, triangle, rectangle, shape, straight, side, curved, corner
2.2	Explore, recognize, and identify shapes by feel Describe attributes of shapes	Students will describe and name shapes. Students will revisit the shape collage and add shapes to it.	Use <i>Shapes by Feel</i> to observe who can and cannot name and describe shapes *shape, corner, side, round, curve, circle, triangle, square, rectangle

	Objectives	Key Activities	Assessment
2.3	Use spatial vocabulary and concepts in everyday situations	Students will model spatial relationships with their bodies and complete an obstacle course by following directions. Students will revisit shape collages.	* top, below, next to, between, in front of, around, over, under, inside, outside, above, beside, up, down
2.4	Count and move between 1 and 10 spaces on a game board Read numbers 1-10	Students will make a spinner and use it to play <i>Spin a Number</i> . Students will revisit the concept of patterns.	Use <i>Spin a Number</i> to observe who can and cannot recognize the numbers 1-10 and to count up to 10 objects
2.5	Notice and describe patterns in surroundings Extend Patterns	Students will look around the room and in magazines to find patterns. Students will revisit shapes.	*pattern
2.6	Practice oral counting forward by ones	Students will play the <i>Counting Games Follow the Leader</i> and <i>Count and Sit</i> . Students will revisit shapes and patterns.	Observations of children who are having difficulty counting
2.7	Identify numbers Develop stroke formation skills to prepare for writing numbers	Students will practice strokes in the air, in sand, in finger-paint, in shaving cream and on sandpaper. Students will revisit numbers 1-9.	Observe students who can and cannot form number strokes *stroke, line, curve, circle
2.8	Compare numbers of coins Consider the likelihood of outcomes on a toss of a money cube Recognize and match pictures of coins with actual ones Identify coin features and begin to use coin names	Students will play the <i>Matching Coin Game</i> to identify and sort coins. Students will revisit numbers 1-9.	*match, penny, nickel, dime, coins

	Objectives	Key Activities	Assessment
2.9	Count objects using one-to-one correspondence Represent numbers with concrete materials Discover that the digits 0-9 can be used to write any number Recognize a visual pattern of numbers	Students will build a number board and describe things they notice about it. Students will revisit numbers beyond 10 as they play <i>Give the Next Number</i> .	*pattern, digit
2.10	Count orally from 10 through 19 Recognize teen numbers Sequence numbers from 10 through 19	Students will name the teen numbers and play the <i>Tricky Teens</i> . Students will revisit shapes and coins.	*tricky teens
2.11	Orally count by ones through 19 Use one-to-one correspondence to count movements Recognize numerals 10-19 Sequence numerals 10-19	Students will take a teen card and complete an action based on their number. Students will revisit shapes as they play <i>I Spy</i> .	Observations of children who are not able to read and sequence the teen numbers or count objects into the teens *teen
2.12	Identify the numbers 0-19 Use concrete materials to represent the numbers 10-19 Recognize each teen number as 10 + a digit	Students will hold up the correct number of fingers to represent “10 and some more”. Students will revisit arranging objects in order by length.	*teen
2.13	Estimate the number of objects in a collection Count objects in a collection	Students will make estimates about how many objects are in various jars. Students will revisit arranging objects by length.	*estimate, about

	Objectives	Key Activities	Assessment
2.14	Use concrete materials and pictures to represent and solve addition and subtraction stories Begin to distinguish between joining (addition) and take-away (subtraction) stories	Students will tell and act out number stories using counters or pictures. Students will revisit teen numbers as they play <i>Count and Sit</i> .	Observations of the language children use as they tell number stories, as well as the strategies they use to solve them *number story, all together, join, add, take away, subtract, remove, equal, more, less, the same
2.15	Explore symmetry by using paint and folded paper Begin to define the concept of symmetry	Students will make symmetrical paintings. Students will revisit teen numbers as they play <i>Follow the Leader</i> .	*symmetry, symmetrical
2.16	Look for symmetry in nature Describe symmetrical objects	Students will make a group symmetry collage. Students will revisit bar graphs.	Use <i>Symmetry in Nature</i> to assess children's ability to identify symmetrical objects *symmetry, symmetrical

Section 3

Unit Goals

- Introduce the concepts of addition and subtraction through concrete activities
- Introduce number writing
- Reinforce and extend counting, numeral recognition, and number comparison skills
- Introduce skip counting by 10s
- Introduce the pan balance
- Introduce non-standard measurement tools and units for measuring length
- Introduce basic language of probability
- Continue shape recognition, patterning, and graphing activities
- Continue estimation and number stories

* Key Vocabulary

Unit Objectives, Activities and Assessment

	Objectives	Key Activities	Assessment
3.1	Draw the correct quantity of items to represent numbers Practice writing numerals Discuss and reinforce the concept of zero	Students will write and represent numbers 0-10 by creating a Number Book. Students will revisit color patterns.	Observation of students who can and cannot write and represent numbers *number
3.2	Create and describe a pattern	Students will use colored macaroni to create a pattern. Students will revisit the estimation jar activity.	Observation of student's ability to create, extend, and describe patterns *pattern, repeat
3.3	Count dots on a single die Read and write numbers 1-6 Create a simple graph of dice rolls Make predictions about dice throws and discuss results	Students will create graphs to record dice rolls. Students will revisit and continue their Number Books.	*count, numbers, graph, row, column, predict
3.4	Investigate the use of the pan balance and weighing techniques Use a pan balance to compare and describe the weights of various objects	Students will compare and discuss weights of different objects using a pan balance. Students will play <i>Give the Next Number</i> using numbers in the 20s and 30s.	*weight, compare, heavier, lighter, pan balance, level, balanced, equal

	Objectives	Key Activities	Assessment
3.5	Count numbers of dots on dominoes Match numbers of dots to written numerals Become aware of equivalent names for numbers	Students will match number cards to number of dots on dominoes and play <i>Domino Concentration</i> . Students will revisit and continue their Number Books.	Use Domino Concentration to observe students who can and cannot accurately count and read numbers *half, match
3.6	Read numbers Compare and order numbers	Students will play <i>Monster Squeeze</i> . Students will revisit and tell a number story for a partner to draw and solve.	Observe students who can and cannot provide clues to narrow in on a mystery number *number line, big, bigger, small, smaller, more, less, high, low
3.7	Measure items using objects of uniform length Compare lengths and arrange items by length	Students will use interlocking cubes to measure and compare objects. Students will revisit and continue their Number Books.	*measure, about, approximate
3.8	Develop and use strategies for solving addition and subtraction problems using concrete objects Begin to understand the meanings of addition and subtraction	Students will solve Pocket Problems by adding and subtracting. Students will revisit graphing dice rolls.	*how many, more, less, add, take away, subtract
3.9	Practice oral counting Practice one-to-one counting Recognize numerals and represent numbers with objects Compare and order numbers	Students will use Small Number Cards (0-20) to play numeral recognition games. Students will revisit and continue their Number Books.	Observation of students who can and cannot count, represent, read and order numbers *number cards, order, smaller, bigger

	Objectives	Key Activities	Assessment
3.10	Think of and categorize likely, unlikely, certain, and impossible events Use the basic language of probability to describe single events	Students will discuss likelihood of real-life events. Students will revisit creating shape art using pre-cut shapes to create pictures.	*possible, impossible, certain, might happen, maybe, likely, unlikely, chance
3.11	Use the basic language of probability to describe predictions	Students will use a probability tray to determine the likelihood of a particular outcome. Students will revisit Shape Art.	Observation of students who can and cannot predict or describe, in general terms, the probability of picking a particular color *certain, likely, unlikely, more likely, possible, impossible, probably, chance, some, none, all, more, less
3.12	Use clay and a pan balance to experiment with adding and removing weight Balance objects with lumps of clay	Students will use objects and lumps of clay to level pan balances. Students will revisit <i>Count and Sit</i> with numbers in the teens, 20s and 30s.	Observe students who can and cannot understand that the pan balance is a tool for measuring weight *level, compare, heavier, lighter, balance, equal, weight
3.13	Count objects using one-to-one correspondence Add and subtract using a collection of objects Distinguish between addition and subtraction	Students will play <i>Train Games</i> to practice counting, adding and subtracting. Students will revisit <i>I Spy</i> with a focus on patterns.	Observations of students who confuse addition and subtraction as they play *count on, forward, add, count back, backward, subtract, remove, take away

	Objectives	Key Activities	Assessment
3.14	Construct a class bar graph Discuss information presented in a bar graph and answer questions	Students will create a Favorite Colors bar graph. Students will revisit measuring with uniform-lengths.	Observations of students who can and cannot use information from the graph to answer questions *bar graph, some, none, all, most, least, more, less
3.15	Count orally by 1s and 10s Begin to recognize patterns of 10 when counting	Students will count by 10s using fingers as visual representations. Students will revisit solving Pocket Problems.	*1s, 10s, skip counting, counting by 10s
3.16	Count up to 20 objects Recognize teen numbers Represent teen numbers as “10 and some more” Compare numbers 11-20	Students will recognize teen numbers by playing <i>Teen Frame</i> . Students will revisit the Probability Tray.	Use Teen Frame to Observe students who can and cannot count and compare teen numbers *count, teen, ten

Section 4

Unit Goals

- Introduce addition and subtraction symbols and terminology through number stories and concrete experiences
- Introduce calculators
- Introduce attribute blocks
- Introduce “*What’s My Rule?*” *Fishing* game activities
- Continue patterning activities using pattern blocks and the pattern block template
- Explore 2-dimensional shapes and symmetry
- Extend counting, numeral recognition, and number writing skills
- Reinforce number sequencing and number comparison skills
- Continue graphing, measuring, estimation, and probability activities

* Key Vocabulary

Unit Objectives, Activities and Assessment

	Objectives	Key Activities	Assessment
4.1	Use a number line to explore addition and subtraction concepts and strategies	Students will look for number lines and discuss similarities and differences. Students will revisit pattern blocks.	*number line, count on, count back
4.2	Read Numbers Compare numbers	Students will discuss strategies for determining which number is more or which is less, then play <i>Top It</i> . Students will revisit and play <i>Give the Next Number</i> .	Use <i>Top-It</i> to assess children’s ability to identify the smaller and larger number in a pair. *more, less, higher, lower
4.3	Use the names of pattern-block shapes Use the Pattern-Block Template to record patterns	Students will use the Pattern-Block Template and pattern blocks. Students will revisit Solving Pocket Problems.	*template, circle, triangle, square, parallelogram, trapezoid, hexagon, pattern

	Objectives	Key Activities	Assessment
4.4	Model and solve addition number stories using manipulatives. Make up addition number stories. Recognize “joining” situations in addition Learn about the + symbol	Students will model number stories using counters and craft sticks. Students will revisit and create pattern strips.	*add, join, all together, addition, symbol, plus sign
4.5	Create and describe patterns with pattern blocks Continue pattern-block patterns	Students will create and extend pattern-block patterns with partners. Students will revisit estimating objects in a collection.	Use the Follow My Pattern activity to observe who can and cannot create, extend and describe patterns *patterns, extend, continue, repeat
4.6	Count by 1s through at least 50 using different starting points	Students will count by 1s from a number other than 0 or 1 and count backward from different starting numbers.	Use Interrupted Counts to observe who can and cannot count how high by 1s *stop sign, red circle (optional)
4.7	Read and display numbers on a calculator	Students will share observations about calculators and answer questions using their calculator. Students will revisit playing the <i>Teen Frame Game</i> .	Observations of students’ ability to enter digits in the right order on their calculators *calculator, display, clear or all clear
4.8	Develop and use strategies to find the sum of two dice rolls Create a graph of dice rolls Compare the probability of various outcomes from rolling two dice	Students will use the Dice-Throw Grid with two dice. Students will revisit feeling the shapes in the “feely box”.	*add, sum, probability, likely, chance

	Objectives	Key Activities	Assessment
4.9	<p>Make circles, squares, rectangles, and triangles using bodies and ropes</p> <p>Identify and describe attributes of shapes</p>	<p>Students will work together to make shapes with their bodies discussing strategies and solve problems cooperatively.</p> <p>Students will revisit making symmetrical snowflakes.</p>	<p>*circle, square, rectangle, triangle, side, corner, shape</p>
4.10	<p>Compare shapes</p> <p>Explore variations of size and angle measures of shapes</p> <p>Realize that shapes remain the same even if their position is changed</p>	<p>Students will work together to create shapes discussing terms: side, corner, and angle.</p> <p>Students will revisit sorting names with their names on index cards.</p>	<p>Observe students who can and cannot identify shapes when the shape's orientation is changed</p> <p>*shape, side, corner, angle, edge, turn, rotate</p>
4.11	<p>Model and solve subtraction number stories using manipulatives</p> <p>Make up subtraction number stories</p> <p>Recognize "take away" situations as subtraction</p> <p>Learn about the (-) symbol</p>	<p>Students will model the action in a take-away story using paper, a craft stick, and 10 counters.</p> <p>Students will revisit number writing in the air with large arm motions.</p>	<p>*take away, subtract, subtraction, symbol, minus sign</p>
4.12	<p>Practice one-to-one counting.</p> <p>Recognize and write numbers</p> <p>Compare and order numbers</p>	<p>Students will use slates to practice writing numbers.</p> <p>Students will revisit measuring with objects.</p>	<p>Observe students who can and cannot respond to prompts with the correct number.</p>
4.13	<p>Identify circles, squares, triangles, and rectangles</p> <p>Explore attribute blocks</p> <p>Sort blocks according to different attributes</p>	<p>Students will share observations about attribute blocks then sort into groups.</p> <p>Students will revisit counting on from different numbers.</p>	<p>Observations of student's ability to recognize and name basic shapes and to use rules to sort a collection of objects</p> <p>*thick, thin, attribute</p>

	Objectives	Key Activities	Assessment
4.14	Apply sorting rules	Students will determine attributes needed for playing fishing game. Students will revisit and play <i>I Spy</i> with shapes.	*attribute, sorting rule
4.15	Use concrete materials and pictures to represent and solve addition and subtraction stories Identify addition and subtraction stories Use +, -, and = symbols in the context of addition and subtraction number stories	Students will tell a joining or take away number story and use the symbols + or – to write a number sentence to model the story. Students will revisit counting by 10s and play <i>Count and Sit</i> .	*joining, take away, number story, add, subtract, subtraction, plus, minus, equal, symbol, number sentence
4.16	Read 2-digit numbers Represent 2-digit numbers with manipulatives Represent 2-digit numbers as groups of tens and ones	Students will read 2-digit numbers on the number line and complete activities to provide additional experiences. Students will revisit describing probability activity.	Observe students who can and cannot read or represent 2-digit numbers *digits, 10s,1s

Section 5

Unit Goals

- Introduce the need for standard measurement tools
- Reinforce the use of multiple attributes to identify, describe, and sort objects
- Reinforce the meanings of addition and subtraction and the use of symbols to write number models for addition and subtraction stories
- Develop awareness of equivalent names for numbers
- Introduce the concept of making exchanges
- Introduce the Class Number Grid
- Introduce skip counting by 5's and tally marks
- Reinforce and extend counting and estimation skills
- Continue patterning and graphing activities

* Key Vocabulary

Unit Objectives, Activities and Assessment

	Objectives	Key Activities	Assessment
5.1	Use Ordinal numbers to describe a sequence of events Sequence daily events and describe when events occur	Students describe three daily activities and sequence them in order. Students will revisit and play the <i>Growing and Disappearing Train Game</i> .	Use Order of Daily Events to observe who can and cannot sequence events and describe time periods of the day *morning, afternoon, evening, before, after, first, second, third, next, last, order, time
5.2	Copy and extend a visual pattern that is not color based Create and describe a visual pattern that is not color based	Students will make patterns using craft sticks. Students will make collections of 100 items.	
5.3	Use multiple attributes to find and describe objects Apply sorting rules	Students describe attribute blocks according to shape, color, size, and thickness. Students will revisit using slates to practice writing 2-digit numbers activity.	Observations of students who can and cannot read and write two-digit numbers *attributes, color and shape names large, medium, small, thick, thin

	Objectives	Key Activities	Assessment
5.4	Think about the combinations of digits used to write numbers Recognize and find equivalent names for numbers Use addition and subtraction clues	Students play the <i>Guess My Number Game</i> . Students will revisit Using the Pan Balances Activity.	Observations of students who can and cannot represent numbers in multiple ways *digit
5.5	Use calculators to count up and back Identify +, -, = and ON/C or AC keys on the calculator	Students practice counting with calculators using several strategies. Students will revisit and play the <i>Monster Squeeze Game</i> .	*clear, all clear, plus, add, minus, take away, subtract, equals
5.6	Measure with nonstandard “feet” Practice measuring techniques	Students count the number of steps to measure objects using their feet. Students revisit and play <i>Top It</i> .	*measure, foot, heel to toe
5.7	Measure with standard and nonstandard units Understand the need for standard measurement units	Students compare standard and nonstandard units of measurement. Students revisit practice counting by tens.	*standard foot, unit
5.8	Skip count by 5’s Use fingers to represent groups of 5 Find patterns in counts by 5	Students use fingers to practice counting by 5s. Students will revisit graphing skills by using a dice throw grid.	*skip count, pattern
5.9	Count tally marks by 5’s Use tally marks to represent numbers Use tally marks to record classroom data	Students practice rote counting by 5s and represent counts with tally marks. Students create equivalent names for the day of the month number on a calendar.	*tally marks

	Objectives	Key Activities	Assessment
5.10	Use objects to represent numbers and make exchanges Explore equivalent names for numbers	Students play <i>The Raft Game</i> . Students will revisit estimating with beans in a jar.	Use Estimating Beans to observe students who can and cannot display estimation skills. *exchange, trade, equal
5.11	Practice measuring with standard and nonstandard units of measurement Compare and discuss measurements using standard and nonstandard units Understand the need for standard units of measure	Students measure objects using standard and nonstandard feet. Students will revisit counting by 1s on the Growing Number Line.	Observations of students who can and cannot measure from heel to toe *standard, nonstandard, 12-inch rulers
5.12	Read numbers on measuring tools Practice linear measuring techniques with various tools Choose tools to fit measuring tasks	Students measure and compare the lengths of objects. Students will revisit and play <i>Domino Concentration</i> .	*measuring tools, scale
5.13	Construct a bar graph Draw conclusions and answer questions based on a graph	Students will make a class bar graph to represent their pets. Students will revisit and create patterns using craft sticks.	Observe students who can and cannot answer questions about bar graphs *bar, total, some, none, all, more, fewer, bar graph
5.14	Choose blocks based on multiple attributes	Students will play the <i>Attribute Spinner Game</i> . Students will revisit the class data tally activity	Observe students who can and cannot work with multiple attributes simultaneously *size, color, shape, thick, thin, attributes

	Objectives	Key Activities	Assessment
5.15	Identify and locate numbers on the Class Number Grid Order numbers on the Class Number Grid Discover number patterns on the Class Number Grid	Students will look for patterns on a number grid. Students will revisit writing number models for number stories	Observations of students who can and cannot locate numbers on the number grids. *number grid, row, column
5.16	Locate and identify numbers on the number grid Explore number patterns	Students play Number-Grid Search. Students will revisit and play the <i>Matching Coin Game</i> .	*number grid, row, column, right, left

Section 6

Unit Goals

- Introduce pennies, nickels, dimes, and coin exchanges
- Introduce 3-dimensional shapes and review 2-dimensional shapes and symmetry
- Explore various ways to measure and compare time
- Extend graphing and patterning skills
- Skip count by 2s and continue other counting, estimation, and numeration activities
- Introduce the concept of half
- Develop strategies for solving simple addition and subtraction problems
- Continue measurement activities with standard and nonstandard tools and units

* Key Vocabulary

Unit Objectives, Activities and Assessment

	Objectives	Key Activities	Assessment
6.1	Count pennies and record the total using the cents symbol Explore the characteristics of a penny Learn about the value of a penny	Students will examine, discuss, and count pennies. Students will revisit counting steps on number line.	*penny, coin, cent, worth, value, symbol
6.2	Skip count by 5s Make exchanges with pennies and nickels Explore the characteristics of a nickel Learn about the value of a nickel	Students will examine, discuss, and count nickels. Students will revisit and play the <i>Growing and Disappearing Train Game</i> .	*nickel, coin, cent, worth, penny, exchange, value
6.3	Explore geometric properties of common objects Compare 2-dimensional and 3-dimensional shapes	Students will examine, discuss, and collect 2- and 3-dimensional shapes to create a Shapes Museum. Students will revisit and make symmetrical hearts and other designs.	*2-dimensional, square, circle, triangle, rectangle, 3-dimensional, cube, sphere, cylinder, cone

	Objectives	Key Activities	Assessment
6.4	Use counting to measure time Compare time required for various tasks	Students will walk and tiptoe across the room to explore how counting can be used to measure and compare time. Students will revisit and play the <i>Raft Game</i> .	*steady pace
6.5	Make graphs using survey information Answer questions based on graphs	Students think of a survey question, collect data from classmates, and graph their answers. Students will revisit the Counting to the Number of the Day Activity.	*survey, graph, data
6.6	Identify and describe 2- and 3-dimensional shapes Describe 2 and 3 dimensional shapes	Students play <i>I Spy</i> using clues for 2- and 3-dimensional shapes. Students revisit and make a “Number of Pets” Graph.	Observations of students who can and cannot identify and name circles, squares, rectangles, and triangles *2-dimensional shape names, 3-dimensional shape names
6.7	Skip count by 10s Make exchanges with pennies, nickels, and dimes Explore the characteristics of the dime Learn about the value of a dime	Students will examine and discuss dimes by exchanging dimes for pennies with a partner. Students will revisit and play the <i>Attribute Spinner Game</i> .	Observations of students who can and cannot count the total number of cents in a handful of coins (dimes or a pile of pennies) by 10s *dime, nickel, penny, exchange, value, coin, cents

	Objectives	Key Activities	Assessment
6.8	Count a collection of pennies Identify pennies, nickels, and dimes Exchange pennies, nickels, and dimes	Students will begin with a pile of pennies and take turns making exchanges with nickels and dimes. Students will play <i>Guess My Number</i> and revisit counting backward.	Observations of students who can and cannot identify pennies, nickels, and dimes *exchange, penny, value, trade, nickel, dime, coin, worth
6.9	Use manipulatives to represent numbers Model and solve comparison number stories	Students will use counters to make up and solve comparison number stories. Students measure items in the classroom using a variety of standard and nonstandard tools for measurement.	Observe students who can and cannot correctly use connecting cubes, foot cutouts, or other nonstandard tools *comparison number story, difference
6.10	Skip count by 2s Use objects to represent groups of 2s Recognize a growing number pattern on a number line or grid	Students will count how many feet are in the room and use skip counting by 2s, then mark the counts on the number line or the number grid and discuss patterns. Students will revisit estimating how many nickels and dimes are in a classroom container.	*count by 2s, skip count, pair
6.11	Count and compare numbers in groups Divide a group of objects in half	Students will divide a group into halves using counters. Students will revisit and play <i>Teen Frame</i> and <i>Top-it</i> .	*half, halves, divide, equal, even, odd, uneven, whole, part

	Objectives	Key Activities	Assessment
6.12	Use multiple attributes to describe objects Use rules based on attributes to select an object from a collection	Students will try to identify a mystery attribute block by asking <i>yes</i> or <i>no</i> attribute questions. Students will revisit and play <i>Monster Squeeze</i> .	Observe students who can and cannot use attribute rules to find an object *attributes
6.13	Compare time measurements Use tools to measure and compare time	Students will discuss counting beats to compare times, observe the second hand on the clock, and count out loud at a 1-per-second rate. Students will revisit and play <i>Number Grid Search</i> .	*seconds
6.14	Use calculators to skip count by 2s, 5s, and 10s Use the symbols + and -	Students will practice skip counting chorally and then by using calculators. Students will revisit the Making Coin Patterns Activity.	*skip counting, plus, equals, pattern, repeat
6.15	Create and extend patterns Use symbols to represent and extend patterns	Students create a movement pattern and use symbols to represent the pattern in writing. Students will revisit the Flipping a Coin Activity.	Observations of students who can and cannot describe events correctly using basic probability terms. *symbol, represent
6.16	Represent half of a whole using concrete objects	Students use graham crackers to discuss “half” and draw lines to show how to break the cracker into two equal parts. Students will revisit the Writing Number Models for Number Stories Activity.	Observations of students who can and cannot realize that when you divide something in half, both sides must be equal *whole, part, half, divide, equal, one half

Section 7

Unit Goals

- Introduce the concept of 10s and 1s and place value using concrete materials
- Introduce name collections through continued exploration of equivalent names for numbers
- Introduce quarters and reinforce the names and values of other coins
- Reinforce addition and subtraction skills and the use of number sentences to model addition and subtraction number stories
- Extend data collection and graphing skills
- Continue activities with 2 and 3 dimensional shapes
- Continue to explore “What’s My Rule” activities with sorting and patterning
- Reinforce and extend counting, estimation, and other numeration skills

* Key Vocabulary

Unit Objectives, Activities and Assessment

	Objectives	Key Activities	Assessment
7.1	Identify names and values of coins Make exchanges with coins	Students will play the game <i>Money Cube</i> to name coins, their values and to make exchanges. Students will revisit counting to the number of the day.	Use Money Cube game to observe students who can and cannot name coins and their values * dime, penny, nickel, cents, exchange
7.2	Practice counting by groups (skip counting) Count objects in a collection Read and write 2 and 3 digit numbers Record and display data	Students will collect objects, count them, record data on a chart and group the items by 10s. Students will revisit the Writing Number Models for Number Stories Activity.	Observations of children who can and cannot count the collection by 1s and 10s

	Objectives	Key Activities	Assessment
7.3	<p>Use pictures to represent and solve addition and subtraction stories</p> <p>Identify addition and subtraction number stories</p> <p>Use the +, -, and = symbols to write number models for number stories</p>	<p>Students will create number stories with pictures, words and numbers.</p> <p>Students will revisit and play the 3-D Shape Game.</p>	<p>Use Creating Number Stories to observe students who can and cannot identify addition and subtraction situations and use the +, -, and = symbols</p> <p>*number story, addition, subtraction, add, subtract, plus, minus, equal, symbol, number sentence</p>
7.4	<p>Construct 2 and 3 dimensional shapes and explore their properties</p> <p>Identify names of 2 and 3 dimensional shapes</p>	<p>Students will make geometric shapes with marshmallows and toothpicks.</p> <p>Students will revisit the Dividing Groups in Half Activity.</p>	<p>Use Dividing Groups in Half to observe students who can and cannot model half of a collection</p> <p>*Dimension, 2-dimensional, and 3-dimensional shape names</p>
7.5	<p>Make exchanges with pennies, nickels, dimes and quarters</p> <p>Explore the characteristics of the quarter</p> <p>Learn about the value of the quarter</p>	<p>Students will use a magnifying glass to look closely at a quarter and discuss the size, shape, color and markings.</p> <p>Students will revisit graphing sums of dice-rolls.</p>	<p>*quarter, cent, exchange, value, penny, nickel, dime, dollar</p>
7.6	<p>Compare the sums of dice throws</p> <p>Add numbers from dice throws using various strategies</p> <p>Reinforce addition skills through dice games</p>	<p>Students will learn how to play <i>Dice Addition</i>.</p> <p>Students will revisit the Creating Number Stories Activity.</p>	<p>Use the <i>Dice Addition Game</i> to observe those who can and cannot add small numbers correctly</p> <p>*sum, add, count on, strategy</p>

	Objectives	Key Activities	Assessment
7.7	Count on from various numbers Count backward from various numbers Count beyond 100 Read numbers	Students will count forward and back from higher numbers. Students will revisit counting the class collection.	Observation of children who can and cannot count higher than 70 or who can only count from 0
7.8	Count by 10s and 1s Estimate the number of items in a collection Represent numbers with manipulatives as 10s and 1s	Students will work in small groups to make bundles of sticks into groups of 10s. Students will count bundles by 10s and the remainder sticks by 1s and record their numbers in writing. Students will revisit and play the <i>Number-Grid Search Game</i> .	Observe Bundling Sticks for those who can and cannot use manipulatives to model numbers and make exchanges *exchange, bundle, tens, ones
7.9	Use craft sticks to find and represent equivalent names for numbers Use the + sign to represent equivalent names for numbers	Students will explore equivalent names for numbers using fingers on two hands and various combinations of sticks. Students will revisit the <i>Attribute Spinner Game</i> .	*combinations, name collection, equivalent names
7.10	Write 1, 2, and 3 digit numbers Notice number patterns	Students will make number scrolls after reviewing the class number grid. Students will revisit estimating quarters.	Observe students who can or cannot write 2-digit numbers on the number grid *number grid, scroll
7.11	Count forward Write numbers as 10s and 1s Use counting to time an event	Students will record decades while counting. Students will revisit the <i>Guess My Number Game</i> .	*tens, ones

	Objectives	Key Activities	Assessment
7.12	Add and subtract items from a game board Explore the difference between addition and subtraction Recognize and use the + and – symbols.	Students will play the <i>Plus or Minus Game</i> . Students will revisit the Counting the Class Collection Activity.	
7.13	Read 2-digit numbers and represent them with manipulatives Recognize 2-digit numbers as combinations of 10s and 1s	Students will compare 2-digit numbers and model them using the stick bundles. Students will revisit the <i>Money Cube Game</i> .	
7.14	Read numbers Put nonconsecutive numbers in ascending order	Students will order numbers from a nonconsecutive order to be in consecutive order and then read numbers from smallest to largest. Students will revisit the Graphing Lengths of Names Activity.	Use Ordering Numbers to assess student’s ability to compare and order numbers Observe that students are making adequate progress if they are able to order numbers through at least 20 *smallest, largest, smaller, larger, order
7.15	Compare patterns and identify patterning rules Apply patterning rules to create and extend patterns	Students will compare patterns that follow the same rule. Students will create a pattern following a specific rule. Students will revisit making name collections	*pattern, rule, repeat

	Objectives	Key Activities	Assessment
7.16	Use objects to represent equivalent names for numbers Use drawings to record equivalent names	Students will make name collections using various objects. Students will set up items in a variety of ways to model several examples for number names.	*equivalent names, names collections, combinations

Section 8

Unit Goals

- Introduce the use of the hour hand to estimate time on an analog clock
- Introduce the concept of hours and minutes
- Introduce Function Machines and function rules
- Continue to explore place-value concepts and equivalent names for numbers
- Introduce \$1 and \$10 bills and reinforce coin names, values, and exchanges
- Introduce “missing number” problems and reinforce the use of number models for addition and subtraction stories and situations
- Continue activities with 2 and 3 dimensional shapes
- Continue graphing and measurement activities
- Reinforce and extend counting, estimation, and other numeration activities

* Key Vocabulary

Unit Objectives, Activities and Assessment

	Objectives	Key Activities	Assessment
8.1	Count by 10s and 1s Use craft sticks to exchange 1s for 10s and 10s for 100s Recognize numbers as combinations of 100s, 10s and 1s	Students will play the <i>Ones, Tens, Hundreds Game</i> . Students will revisit the counting the class collection activity.	Use <i>Ones, Tens, Hundreds Game</i> to assess children’s ability to exchange 1s for 10s and 10s for 100 *ones, tens, hundreds, equals, trade, exchange
8.2	Develop a sense of the length of an hour Notice the “o’clock” times on an analog clock	Students will mark hours by using a set timer or watch. At the sound of the bell or beep, discuss what they have done in the past hour. Students will revisit favorite games and compose a favorite games graph.	*hour, o’clock

	Objectives	Key Activities	Assessment
8.3	Construct and use hour hand clock	Students will make an hour hand clock using a paper plate and brad. Students will set and discuss times on the hour. Students will revisit making shapes and structures activity.	*hour hand, o'clock, just before, just after, halfway between
8.4	Compare numbers to decide which is greatest Use "counting on" as a strategy to add numbers from dice throws.	Students will play the <i>High Roller Game</i> using two dice and the strategy of "counting-on". Students will revisit the Fishing for Children: What's My Rule? Activity.	Observe children who begin from 1 and count the dots on both dice rather than using the "counting-on" strategy as a shortcut *compare, count on
8.5	Apply addition and subtraction based function rules Use function rules to generate related pairs of numbers	Students will be introduced to the function machine box. They will learn the <i>in</i> , <i>out</i> , and <i>rule</i> features. Students will revisit and review coin activities.	*function machine, rule
8.6	Manipulate digits in numbers Use mental math strategies to add and subtract numbers	Students will play the <i>Number Gymnastics Game</i> . The students can give the clues after you have modeled the game several times. The students will revisit the Studying Weather and Temperature Data Activity.	*digit, reverse, add, subtract

	Objectives	Key Activities	Assessment
8.7	Explore the characteristics of the \$1 bill Learn about the value of a dollar	Students will share magnifying lenses to explore the characteristics of a \$1 bill. Students will revisit function machines.	* one-dollar bill, dollar sign, exchange, equals
8.8	Make exchanges with pennies, dimes, and dollars Learn about the value of a dollar	Students will play the <i>One Dollar Game</i> . They will take turns rolling the money cube and picking the appropriate coin from the bank. Students will revisit the making names collections.	*dollar, exchange, trade
8.9	Represent numbers using manipulatives, drawings, tallies, and numerical expressions Generate equivalent names for numbers Represent numbers with simple addition and subtraction number sentences	Students will complete making names posters. Students will revisit and continue working on number scrolls.	Use name collection posters to observe who can and cannot represent equivalent names for numbers. *equivalent names, name collection
8.10	Apply addition and subtraction based rules Explore the difference between addition and subtraction rules Use related pairs of numbers to identify function rules Use rules to determine missing numbers in a number pair	Students will solve “What’s My Rule?” with Numbers . Students will revisit using the hour-hand clock.	Use “What’s My Rule?” with Numbers to observe who can and cannot complete a number pair by applying a rule. *function machine, rule
8.11	Add the minute hand to paper clocks Recognize the difference between the hour hand and the minute hand Copy clock times on a paper clock	Students will tell the “Hour-Hand, Minute-Hand Story,” and cut out and attach the minute hands to their paper clocks. Students will revisit using a pan balance activity.	*hour hand, minute hand, hour, minute, slower, faster, o’clock

	Objectives	Key Activities	Assessment
8.12	Read clocks to the hour Match times shown on digital and analog clocks	Students will play the <i>Time Match Game</i> with analog and digital clocks. Students will revisit the <i>Dividing Wholes into Halves Activity</i> .	*analog, digital
8.13	Solve missing number problems using concrete objects Identify addition and subtraction situations Write number sentences	Students will solve missing number pocket problems. Students will revisit <i>I Spy</i> for shapes and patterns.	Use <i>I Spy</i> to observe who can and cannot recognize 2 and 3 dimensional shapes. *total, number sentence, missing number, add, subtract
8.14	Use calculators to model and solve number stories Recognize number stories as addition and subtraction stories Use +, -, and = symbols to create number models for number stories	Students will tell number stories with calculators and model an addition or subtraction story. Students will revisit playing <i>Number Gymnastics</i> with slates.	Use number stories with calculators to observe who can and cannot tell a simple number story and model it with numbers and symbols. *number story, addition sign, minus(take away) sign, equals, equal sign, clear, all clear
8.15	Count the number of nonstandard units used to weigh an object Compare the weight of two or more objects using nonstandard units Use nonstandard units to weigh objects on a pan balance	Students will weigh objects using a pan balance and uniform weights such as pennies, washers, or paper clips. Students will revisit and practice number writing activities.	Use the Number Writing Pages to observe who can and cannot represent numbers in different ways * level, weigh , weights, unit, balance

	Objectives	Key Activities	Assessment
8.16	<p>Practice making exchanges with \$1 and \$10 bills</p> <p>Explore the characteristics of the \$10 bill</p> <p>Learn about the value of the \$10 bill</p>	<p>Students will explore the \$10 bill. Use a magnifying glass to describe characteristics and make comparisons to the \$1 bill.</p> <p>Students will revisit the Measuring in Different Ways Activity.</p>	<p>Observe students who can and cannot understand why you can exchange ten \$1 bills for one \$10.</p> <p>*one dollar bill, ten dollar bill. Trade, exchange, equals, dollar sign</p>

References

- Bell, J., et al. (2007). *Everyday mathematics the University of Chicago School of Mathematics project: Teacher's Lesson Guide*. Chicago, IL: McGraw Hill Wright Group.
- Carroll W. M., Fuson K. C., & Drueck J. V. (2000). Achievement results for second and third graders using the standards-based curriculum Everyday Mathematics [Electronic version]. *Journal for Research in Mathematics Education*, 31 (3), 277-295.
- Clearinghouse, Institute of Education Sciences (2007). A review of four Everyday Mathematics studies. *What Works Clearinghouse, Non-journal*. Retrieved on April 14, 2008 from <http://www.whatworks.ed.gov/> (18).
- Fuson, K.C., Carroll, W.M. and Drueck, J.V. (2000). Documentation of the results of a study comparing achievement of second and third grade students using Everyday Mathematics [Electronic version]. *Journal for Research in Mathematics Education*, 31 (3), 277-295
- National Council of Teachers of Mathematics (2006). *Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics*. Reston, VA: Author.
- Riordan, J.E. & Noyce, P.E. (2001). The impact of two standards-based mathematics curricula on student achievement in Massachusetts [Electronic version]. *Journal for Research in Mathematics Education*, 32(4), 368 – 398.
- Sood, S. & Jitendra, A.K., (2007). A comparison of number sense instruction in first grade traditional mathematics textbooks and Everyday Mathematics [Electronic version]. *Journal of Special Education*, 41 (3), 145-157.