MIDLAND PARK PUBLIC SCHOOLS
Midland Park, New Jersey
CURRICULUM

Math
Grade 2

Aligned to NJSLS Standards

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CCCS 8/2011
Addenda 5/2016
NJSLS 5/2017

UNIT OVERVIEW

Content Area: Mathematics

Unit Title: Basic Facts & Algebra Concepts

Grade Level: 2

Unit Summary:

Basic Facts
- 1 thru 20

Addition/Subtraction
- one-digit
- two-digit
- regrouping - strategies
- Commutative Property of Addition
- Zero Identity Property

Decimals
- money

LEARNING TARGETS

Standards: **NJSLS**

Domain: **2.OA** Operations & Algebraic Thinking

Clusters:
- Represent and solve problems involving addition and subtraction.
- Add and subtract within 20.
- Work with equal groups of objects to gain foundations for multiplication.

NJSLS Standards:

2.OA.A.1. Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1]

2.OA.B.2. Fluently add and subtract within 20 using mental strategies.[2] By end of Grade 2, know from memory all sums of two one-digit numbers.

2.OA.C.3. Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

2.OA.C.4. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

[1] See Glossary, Table 1.

[2]See standard 1.OA.6 for a list of mental strategies.

Domain: **2.NBT** Numbers & Operations in Base Ten

Clusters:
- Use place value understanding and properties of operations to add and subtract.

NJSLS Standards:

2.NBT.B.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

2.NBT.B.6. Add up to four two-digit numbers using strategies based on place value and properties of operations.

2.NBT.B.7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

2.NBT.B.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.

2.NBT.B.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.[1]

[1] Explanations may be supported by drawings or objects.

Unit Essential Questions:

- What is the meaning of addition and subtraction?
- How do we find the value of a number sentence?
- How does addition relate to subtraction and vice versa?

Unit Enduring Understandings:

- Addition is the joining of groups.
- Subtraction is separating (taking away) or comparing groups.
- Addition and subtraction are opposite operations within a fact family.

Unit Learning Targets:

Students will …

Basic Facts

- demonstrates immediate recall of basic addition facts 0 thru 20

Addition/Subtraction

- be able to utilize and demonstrate understanding of the Commutative Property of Addition
- be able to use the Identity Property of Zero
- utilize learned strategies to determine sums and differences: fact families, related facts, doubles, doubles plus one
- utilize learned strategies for addition and subtraction with and without regrouping
- recognize and use proper vocabulary
- read and write +, -, = number sentences, both vertically and horizontally

Decimals

- utilize decimal format when writing money amounts equal to or greater than $1.00

EVIDENCE OF LEARNING

Summative Assessment: (X DAYS)

- Diagnostic Checkpoints
- Cumulative Review and Test Prep
- Practice Worksheets
- Math Journal

Formative Assessments:

- Diagnosing Readiness for Chapter Test
- Basic Facts Timed Test
- Chapter Test

Equipment Needed:

- Manipulatives – counters
- Workmats
- Number lines
- 100 Chart
- Base 10 cubes
- Regrouping template
- Whiteboards/markers
- Vocabulary cards

Teacher Resources:

- Scott Foresman – Addison Wesley NJ Mathematics Teacher's Edition

LESSON PLANS

Lesson #	Lesson Name	Time frame (hours/days)

Teacher Notes:		
Curriculum Development Resources:		

UNIT OVERVIEW	
Content Area:	Mathematics
Unit Title:	Geometry and Fractions
Grade Level:	2

Unit Summary:

Geometry

- solid figures
- plane shapes
- symmetry
- congruency
- slide, flip, turn

Fractions

- halves
- thirds
- fourths

LEARNING TARGETS	
Standards:	**NJSLS**
Domain:	Geometry
Clusters:	Reason with shapes and their attributes.

Standards:

2.G.A.1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.[1] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

2.G.A.2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

2.G.A.3. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

[1] Sizes are compared directly or visually, not compared by measuring.

Unit Essential Questions:

- What is geometry?
- How are plane shapes and solid figures related?
- What is a whole?
- How can a whole be divided?
- What is a fraction and how is it related to a whole number?

Unit Enduring Understandings:

- Geometry is the study of shapes and special relationships.
- Fractions represent quantities less than, equal to, or greater than a whole.

Unit Learning Targets:
Students will …

Geometry

- be able to identify solid figures and their attributes
- be able to recognize plane shapes
- be able to identify congruent figures
- be able to perform a slide, flip and turn of a shape
- be able to create symmetrical shapes
- be able to find the line of symmetry

Fractions

- able to use concrete objects or pictures to divide a whole or a set into fractional parts
- able to identify from a picture fractional parts 1/2, 1/3, 1/4
- able to draw fractional parts 1/2, 1/3, 1/4

EVIDENCE OF LEARNING

Summative Assessment: (X DAYS)

- Diagnostic Checkpoints
- Cumulative Review and Test Prep
- Practice Worksheets
- Math Journal

Formative Assessments:

- Diagnosing Readiness for Chapter Test
- Basic Facts Timed Test
- Chapter Test

Equipment Needed:

- Solid figures
- Plane shapes
- Geoboards
- Graph paper
- Dot paper
- Fractions – circles, rectangles
- Cruisenaire rods
- Vocabulary cards

Teacher Resources:

- Scott Foresman – Addison Wesley NJ Mathematics Teacher's Edition

LESSON PLANS		
Lesson #	**Lesson Name**	**Time frame (hours/days)**
Teacher Notes:		
Curriculum Development Resources:		

UNIT OVERVIEW	
Content Area:	Mathematics
Unit Title:	Measurement and Data
Grade Level:	2

Unit Summary:

Money
- pennies, nickels, dimes, quarters, half dollars
- $1.00 bill
- dollar and cents notation
- equivalents of amounts < and = $1.00

Time
- hour
- half-hour
- quarter to; quarter after
- 5 minute intervals
- elapsed time

Calendar
- days of week
- months of year

Length and Height
- yard
- feet
- inches

Capacity
- **Volume**
  - cups
  - pints
  - quarts
  - liters
- **Weight**
  - pounds
  - ounces
  - grams
  - kilograms

Temperature
- Fahrenheit
- Celsius

Graphs
- bar graph
- pictograph
- line plots
- coordinate graphs
- venn diagram

Tables and Charts

Probability

- predictions/conclusions

LEARNING TARGETS

Standards: **NJSLS**

Domain: Measurement & Data

Clusters:

- Measure and estimate lengths in standard units.
- Relate addition and subtraction to length.
- Work with time and money.
- Represent and interpret data.

NJSLS Standards:

2.MD.A.1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

2.MD.A.2. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.

2.MD.A.3. Estimate lengths using units of inches, feet, centimeters, and meters.

2.MD.A.4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

2..MD.B.5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

2.MD.C.7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

2.MD.C.8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?

2.MD.D.9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

2.MD.D.10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems[1] using information presented in a bar graph.

Unit Essential Questions:

- How do we apply the concept of measurement to our lives?
- Why do we use standard measurement?
- How does graphing data help us understand information better?

Unit Enduring Understanding:

- Measurement is used in our daily lives to compare lengths, capacity, weight and temperature.
- Standard measurement is used to provide universal consistency.
- Graphing provides a visual way of organizing and understanding data.

Unit Learning Targets:
Students will ...

Money

- identify pennies, nickels, dimes, quarters, half-dollars, dollar coins
- identify bills - $1.00; $5.00
- calculate groups of coins/bills
- utilize correct notation to record money amounts
- identify equivalent combinations of coins to a $1.00
- make change of $1.00 by counting up

Time

- explain and utilize second, minute, hour
- able to tell time in five minute intervals
- describe and identify elapsed time
- differentiate between day and night
- estimate time it takes to do something

Calendar

- read days of week, months
- write days of week, months
- utilize a calendar

Length, Height and Weight

- identify and utilize inch, foot, yard, pound, pint, quart
- compare based on attributes

Graphs

- display data in graphs using objects or numbers
- compare and interpret data - similarities and differences

Tables and Charts

- utilize tally marks to record data
- organize data

Probability

- support prediction of outcome utilizing past experiences

EVIDENCE OF LEARNING

Summative Assessment: (X DAYS)

- Diagnostic Checkpoints
- Cumulative Review and Test Prep
- Practice Worksheets
- Math Journal

Formative Assessments:

- Diagnosing Readiness for Chapter Test
- Basic Facts Timed Test
- Chapter Test

Equipment Needed:

- Money – pennies, nickels, dimes, quarters, half-dollars, dollar coins, bills
- Money placemat
- Clock
- Elasped ruler clock
- Calendar
- Rulers
- Measuring cups
- Scale
- Thermometer
- Graph paper
- Vocabulary cards

Teacher Resources:

- Scott Foresman – Addison Wesley NJ Mathematics Teacher's Edition

LESSON PLANS		
Lesson #	**Lesson Name**	**Time frame (hours/days)**
Teacher Notes:		
Curriculum Development Resources:		

UNIT OVERVIEW	
Content Area:	Mathematics
Unit Title:	Number Relationships (to 1000)
Grade Level:	**2**

Unit Summary:

Counting

- by ones, fives, tens
- odd/even numbers
- skip counting

Writing Numbers

- number words
- standard form
- expanded form

Comparing/Ordering

- greater than
- less than
- equal to
- before
- after
- between
- least to greatest
- greatest to least

Fact Families

Place Value

- ones, tens, hundreds

Ordinal Numbers

- first through twentieth

LEARNING TARGETS	
Standards:	**NJSLS**
Domain:	**2.NBT** Numbers & Operations in Base Ten
Clusters:	Understand place value.

NJSLS Standards:

2.NBT.A.1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:

100 can be thought of as a bundle of ten tens — called a "hundred."

The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

2.NBT.A.2. Count within 1000; skip-count by 5s, 10s, and 100s.

2.NBT.A.3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

2.NBT.A.4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

Unit Essential Questions:

- What are numbers?
- How are numbers related?
- How are numbers used?

Unit Enduring Understandings:

- Numbers represent different quantities or amounts.
- Numbers are used for counting, ordering, comparing and measuring.

Unit Learning Targets:

Students will ...

Counting

- be able to count by ones, fives, tens to 100
- be able to count by 100 to 1000
- identify a number as either odd or even
- recognize and extend skip counting patterns to 100

Writing Numbers

- read and write number words one through twenty
- write one and two digit numbers through 99
- use a variety of ways to represent the same number for numbers 0 thru 100

Comparing/Ordering

- read, write, compare and order numbers through 1000
- name numbers before, between and after two given numbers through 1000
- use the symbols to represent greater than (>), less than (<), and equal (=) to compare whole numbers through 1000
- be able to order numbers using before, between, after for numbers up to 1000
- be able to organize numbers least to greatest for numbers up to 1000
- be able to organize numbers greatest to least for numbers up to 1000
- use a number line to determine the closest ten

Fact Families

- able to complete a fact family when given the two addends
- write the addition and subtraction sentences that make up a fact family

Place Value

- able to identify the number value for the ones place, tens place and hundreds place in any given two-digit or three-digit number

Ordinal Numbers

- use and understand verbal ordinal numbers for first through twentieth
- read and write ordinal numbers - first through twentieth

EVIDENCE OF LEARNING

Summative Assessment: (X DAYS)

- Diagnostic Checkpoints
- Cumulative Review and Test Prep
- Practice worksheets
- Math Journal

Formative Assessments:

- Diagnosing Readiness for Chapter Test
- Basic Facts Timed Test
- Chapter Test

Equipment Needed:

- Number lines
- Number flashcards
- Hundred Chart
- Base 10 cubes
- Base 10 workmat
- Number tiles
- <, >, = tiles/cards
- Whiteboards/markers
- Vocabulary cards

Teacher Resources:

- Scott Foresman – Addison Wesley NJ Mathematics Teacher's Edition

LESSON PLANS

Lesson #	Lesson Name	Time frame (hours/days)

Teacher Notes:		
Curriculum Development Resources:		