NEW MILFORD PUBLIC SCHOOLS
New Milford, Connecticut

Grade One Mathematics

September 2014

Approved by the Board of Education
September 9, 2014

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New Milford's Mission Statement

The mission of the New Milford Public Schools, a collaborative partnership of students, educators, family and community, is to prepare each and every student to compete and excel in an ever-changing world, embrace challenges with vigor, respect and appreciate the worth of every human being, and contribute to society by providing effective instruction and dynamic curriculum, offering a wide range of valuable experiences, and inspiring students to pursue their dreams and aspirations.

Pacing Guide

Unit #	Weeks	Pages
1	5	6-10
2	3	11-14
3	6	15-19
4	3	20-23
5	2	24-28
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Key for Standards

MP 1 - Make sense of problems and persevere in solving them

MP 2 - Reason abstractly and quantitatively

MP 3 - Construct viable arguments and critique the reasoning of others

MP 4 - Model with mathematics

MP 5 - Use appropriate tools strategically

MP 6 - Attend to precision

MP 7 - Look for and make use of structure

MP 8 - Look for and express regularity in repeated reasoning.

New Milford Public Schools

Committee Member(s): Elaine Annese, Nicole Gregory, Corby Kennison, Virginia Mooney, Stephanie Zappone Unit Title: Unit 1	Course/Subject: Math Grade Level: Grade 1 # of Weeks: 5

Identify Desired Results

Common Core Standards

Standards in the Unit

- (1.OA.1) Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- (1.OA.2) Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- (1.OA.3) Apply properties of operations as strategies to add and subtract.3 *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 +10 = 12. (Associative property of addition.)*
- (1.OA.5) Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- (1.OA.6) Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8= 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
- (1.OA.8) Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + □ = 11, 5 = □– 3, 6 + 6 =□.*
- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.NBT.3) Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <. (Unit 1 compares 1-digit numbers.)

Standards in the Classroom Routines

- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

- (1.MD.4) Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	**Essential Questions** Inquiry used to explore generalizations
• Mathematical operations are used in solving problems in which a new value is produced from one or more values. • Algebraic thinking involved choosing, combining, and applying effective strategies for answering quantitative questions. • Understanding place value leads to number sense and efficient strategies for computation.	• In what ways can operations affect numbers? Does the order of the numbers matter in subtraction? • How can different strategies be helpful when solving a problem? • How does a digit's position affect its value?

Expected Performances
What students should know and be able to do

Students will know the following:

- In this first number unit in Grade 1, students count, order, compare quantities, and work with the operation of addition. Students also work on finding addition combinations up to 10 and learn to make sense of and solve story problems. They are introduced to several of the classroom routines that practice and reinforce work with counting, developing visual images of number, collecting data, and working with concepts of time (calendar/clock).

Students will be able to do the following:

- Count a set of up to 20 objects
- Compare and order quantities to 20
- Combine two small quantities
- Interpret (retell the action in sequence) and solve addition story problems
- Find more than one combination of two addends for a number up to 10

Character Attributes

- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies

- None

Develop Teaching and Learning Plan

Teaching Strategies:

Use a math workshop model with teacher-directed mini-lesson

- to provide students with repeated experiences with concepts and skills
- to provide time for teachers to work with small groups of students

Use games to develop concepts and practice skills

Use student-centered activities and worthwhile math tasks

Use a variety of grouping structures

- Collaborative groups, partners, individuals

Orchestrate class discussions

- Focus discussions on important mathematics and student strategies
- Elicit participation by all students over the course of several discussions
- Facilitate student to student discourse

Encourage students to represent and discuss their thinking strategies

Use Classroom Routines to provide on-going practice and review

- Start With/Get To
  - Connecting written number and number names
  - Using the number line as a tool for counting
  - Practicing the forward and backward counting sequences with numbers up to 100
- Morning Meeting
  - Developing strategies for counting accurately (Attendance, Calendar, Weather)
  - Using the calendar as a tool for keeping track of time
  - Developing vocabulary to talk about time, such as morning, noon, afternoon
  - Collecting and recording data (weather)

Learning Activities:

- Establish Classroom Routines: calendar, weather, daily schedule, attendance and Mystery Box and Start With/Get To
- Explore Math Tools: connecting cubes, pattern blocks, geoblocks, power polygon
- Order a set of numbers and quantities up to 12 by constructing Staircases
- Play game Compare Dots and Double Compare Dots to compare two quantities up to 10 to see which is larger
- Practice the rote counting sequence forward and backward from 1 to 30
- Model the action of an addition problem with counters and drawings
- Play game Five in a Row to find the total of two or more quantities up to a total of 20 by counting all, counting on, or using number combinations
- Visualize and retell the action in an addition sentence
- Play game Roll and Record to connect number names and written numbers
- Strategize to problem solve and illustrate how quantities in the counting sequence are related: each number is 1 more or 1 less than the number before or after it
- Solve a problem with multiple solutions through illustrations
- Play game Three towers and Heads and Tails to find the total of two or more quantities up to a total of 20 by counting all, counting on, or using number combinations
- Play game How Many Am I Hiding to find and explore relationships among the combinations of numbers up to 20

• Quick Images
  • Develop and analyze visual images for quantities up to 10
  • Re-creating an arrangement of objects
  • Finding the total of two or more single digit quantities	

Assessments

Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	**Other Evidence** Application that is functional in a classroom context to evaluate student achievement of desired results
Goal: Role: Audience: Situation: Product or Performance: Standards for Success:	**Ongoing Formative Assessments:** **Observing Students:** • Count fluently, confidently and accurately with the names and sequence of numbers • Recognize the 1-6 dot patterns • Figure out and keep track of how many counters they have • Use a 20 frame as part of their strategy • Know what numbers to write for a given quantity • Recognize the number on the card • Put the numbers in order • Record from least to most accurately • Use strategies that do not rely on finding the totals, such as comparing the amounts of individual cards • Remember and make sense of the sequence of actions in a story • Represent a number in a group • Find at least one combination of a number • Determine when a tower is complete or how many more is needed • Count their pennies and notice repeat combinations • Determine the number of hidden cubes

	Other Formative Assessments Counting 20 • Students draw 20 circles and show how they know it is 20 Double Compare • Students circle the cards that show more and show their thinking **End of Unit Assessment** • Students solve an addition story problem. They must count a set of up to 20 objects and retell and sequence the action. • Rosa made 7 cookies. Max made 8 more cookies. How many cookies did they make in all? • Students show more than one way to solve a problem. • I have 8 fruits. Some are bananas and some are apples. How many of each could I have?

Suggested Resources

- Howard County Math Wiki, Grade 1
- K-5 Math Teaching Resources, K-5 Math Teaching Resources, LLC. http://www.k-5mathteachingresources.com/ . May 9, 2014.
- Russell, Susan Jo and Karen Economopoulos. (Second Edition, 2012) *Investigations in Number, Data, and Space, Grade 1: Unit 1, How Many of Each?* Upper Saddle River, NJ: Pearson.
- Van de Walle, John, et al. *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades Pre-K-2*, Second Edition. Boston: Pearson, 2014.

New Milford Public Schools

Committee Member(s): Elaine Annese, Nicole Gregory, Corby Kennison, Virginia Mooney, Stephanie Zappone Unit Title: Unit 2	Course/Subject: Math Grade Level: Grade 1 # of Weeks: 3

Identify Desired Results

Common Core Standards

Standards in the Unit

- (1.G.1) Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
- (1.G.2) Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

Standards in the Classroom Routines

- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.MD.4) Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	**Essential Questions** Inquiry used to explore generalizations
• Geometric attributes (such as shapes, lines, angles, figures, and planes) provide descriptive information about an object's properties and support visualization and problem solving.	• How does geometry better describe objects?

Expected Performances
What students should know and be able to do

Students will know the following:

- This geometry unit focuses on two-dimensional shapes and the relationships between them. Students observe, describe, compare, classify, represent, and compose and decompose 2-D shapes. Students learn to use geometric language to describe and identify important features of familiar 2-D shapes. As they sort and describe groups of shapes, they begin to distinguish specific attributes of triangles and quadrilaterals. The Shapes software is introduced as a tool for extending and deepening this work. This tool is

designed for K–2 students to explore how different shapes go together.

Students will be able to do the following:

- Fill a given region in different ways with a variety of shapes
- Use geometric language to describe and identify important features of familiar 2D shapes
- Identify and describe triangles
- Describe and sort 2D shapes
- Compose and decompose shapes

Character Attributes

- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies

- None

Develop Teaching and Learning Plan

Teaching Strategies:

Use a math workshop model with teacher-directed mini-lesson

- to provide students with repeated experiences with concepts and skills
- to provide time for teachers to work with small groups of students

Use games to develop concepts and practice skills

Use student-centered activities and worthwhile math tasks

Use a variety of grouping structures

- Collaborative groups, partners, individuals

Orchestrate class discussions

- Focus discussions on important mathematics and student strategies
- Elicit participation by all students over the course of several discussions
- Facilitate student to student discourse

Learning Activities:

- Notice shapes in your environment.
- Describe compare and name 2-D shapes
- Find different block combinations that fill an area without gaps
- Explore with Pattern-Block Fill-Ins
- Compose and decompose in a variety of ways 2-D Shapes using pattern blocks.
- Draw shapes with the Quick Image with Shapes and discover different attributes of shapes
- Develop images of and language for describing 2-D shapes
- Identify attributes of a variety of shapes
- Play Guess My Rule game to compare and contrast similarities and differences in shapes
- Describe characteristics of triangles, quadrilaterals

Encourage students to represent and discuss their thinking strategies
Use Classroom Routines to provide on-going practice and review

- Start With/Get To
  - Connecting written number and number names
  - Using the number line as a tool for counting
  - Practicing the forward and backward counting sequences with numbers up to 100
- Morning Meeting
  - Developing strategies for counting accurately (Attendance, Calendar, Weather)
  - Using the calendar as a tool for keeping track of time
  - Developing vocabulary to talk about time, such as morning, noon, afternoon
  - Collecting and recording data (weather)
- Quick Images
  - Develop and analyze visual images for quantities up to 10
  - Re-creating an arrangement of objects
  - Finding the total of two or more single digit quantities

Assessments

Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	**Other Evidence** Application that is functional in a classroom context to evaluate student achievement of desired results
Goal: Role: Audience: Situation: Product or Performance: Standards for Success:	**Ongoing Formative Assessments: Observing Students** • Notice different features of the shapes. • Identify and name shapes in enviroment • Discriminate shapes needed to fill in an area (visually) • Create different combinations of shapes to cover a shape • Break apart shapes into smaller

	shapes • Distinguish shape attributes • Recognize shapes can create other shapes **Other Formative Assessments** Many Ways to Fill a Hexagon • Fill the hexagons on Assessment sheet • Record the different ways they covered the 2-D Shape What is a Triangle? • Identify a triangle • Recognize different types of triangles • Distinguish the attributes of triangle **End of Unit Assessment** • Find different combinations to fill the same area • Describe, compare and name 2-D shapes • Identify common attributes of a group of shapes

Suggested Resources

- Howard County Math Wiki, Grade 1. June 23, 2014.
- K-5 Math Teaching Resources, K-5 Math Teaching Resources, LLC. http://www.k-5mathteachingresources.com/ . May 9, 2014.
- Russell, Susan Jo and Karen Economopoulos. (Second Edition, 2012) *Investigations in Number, Data, and Space, Grade 1: Unit 2, Making Shapes and Designing Quilts.* Upper Saddle River, NJ: Pearson.
- Van de Walle, John, et al. *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades Pre-K-2*, Second Edition. Boston: Pearson, 2014.

Committee Member(s): Elaine Annese, Nicole Gregory, Corby Kennison, Virginia Mooney, and Stephanie Zappone Unit Title: Unit 3	Course/Subject: Math Grade Level: Grade 1 # of Weeks: 6

Identify Desired Results

Common Core Standards

Standards in the Unit

- (1.OA.1) Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- (1.OA.2) Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- (1.OA.3) Apply properties of operations as strategies to add and subtract.3 Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 +10 = 12. (Associative property of addition.)
- (1.OA.5) Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- (1.OA.6) Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8= 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
- (1.OA.7) Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.
- (1.OA.8) Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 + □ = 11, 5 = □– 3, 6 + 6 =□.
- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Standards in the Classroom Routines

- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.MD.4) Organize, represent, and interpret data with up to three categories; ask

and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	**Essential Questions** Inquiry used to explore generalizations
• Mathematical operations are used in solving problems in which a new value is produced from one or more values. • Algebraic thinking involved choosing, combining, and applying effective strategies for answering quantitative questions. • Understanding place value leads to number sense and efficient strategies for computation.	• In what ways can operations affect numbers? Does the order of the numbers matter in subtraction? • How can different strategies be helpful when solving a problem? • How does a digit's position affect its value?

Expected Performances
What students should know and be able to do

Students will know the following:

- This unit focuses on counting to higher numbers (forward and back, counting sets of objects, comparing larger quantities, composing and decomposing numbers, and finding all the two-addend combinations of a number). Students revisit familiar addition activities with variations that encourage counting on, and they are introduced to the operation of subtraction. Through games and story problems, students' work focuses on developing an understanding of addition and subtraction, using numbers and notation to represent these operations, and developing strategies for solving addition and subtraction problems.

Students will be able to do the following:

- Find at least 5 combinations of two addends for a number up to 15
- Combine two small quantities
- Interpret (retell the action and sequence) and solve addition and subtraction story problems
- Subtract one small quantity from another
- Represent numbers by using equivalent expressions
- Count a set of 40-50 objects
- Rote count, read, and write numbers to 65

Character Attributes

- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies

- None

Develop Teaching and Learning Plan

Teaching Strategies:

Use a math workshop model with teacher-directed mini-lesson

- to provide students with repeated experiences with concepts and skills
- to provide time for teachers to work with small groups of students

Use games to develop concepts and practice skills

Use student-centered activities and worthwhile math tasks

Use a variety of grouping structures

- Collaborative groups, partners, individuals

Orchestrate class discussions

- Focus discussions on important mathematics and student strategies
- Elicit participation by all students over the course of several discussions
- Facilitate student to student discourse

Encourage students to represent and discuss their thinking strategies

Use Classroom Routines to provide on-going practice and review

- Start With/Get To
  - Connecting written number and number names
  - Using the number line as a tool for counting
  - Practicing the forward and backward counting sequences with numbers up to 100
- Morning Meeting

Learning Activities:

- Combine two numbers
- Use numbers and standard notation (+, -, =) to record story problems using addition games - Dot Addition, Roll and Record, and Five in a Row
- Find the total of two or more quantities up to a total of 20 by counting all, counting on, or using number combinations playing games – Roll and record, Five in a Row, and Dot Addition
- Visualize, retell, and solve addition story problems and subtraction situations involving removal
- Use the equal sign to show equivalent expressions (game – Dot Addition Gameboard D)
- Subtract one number from another (up to 12) using games (Roll and Record: Subtraction, Five-in-a-Row: Subtraction) and manipulatives (dot cube, number cube, and connecting cubes)
- Develop strategies for solving addition and subtraction problems through discussion
- Develop methods for recording subtraction strategies through modeling, drawing pictures, and games
- Generate and record equivalent expressions for a number using (>,<,)
- Connect written numbers and standard notation (>,<,+,-,+) to the

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Developing strategies for counting accurately (Attendance, Calendar, Weather)
Using the calendar as a tool for keeping track of time
Developing vocabulary to talk about time, such as morning, noon, afternoon
Collecting and recording data (weather)

Quick Images

Develop and analyze visual images for quantities up to 10
Re-creating an arrangement of objects
Finding the total of two or more single digit quantities

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quantities and actions they represent using cubes, Today’s Number activity, modeling, drawing pictures, math games, and discussions
Measure an area by covering an outline with same sizes objects
Estimate and count sets of objects.
Record, organize, and interpret numerical information using color tiles, data charts and graphs
Count from 1 to 100 in sequence using a number line and hundreds chart
Write numbers in sequence (as high as students know) using counting strips
Identify and use patterns in the sequence .of numbers to 100 using the Missing Numbers activity and the 100’s pocket chart

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<tr>
<td colspan="2">Assessments</td>
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<tr>
<td>Performance Task(s)
Authentic application to evaluate student achievement of desired results designed according to GRASPS
(one per marking period)</td>
<td>Other Evidence
Application that is functional in a classroom context to evaluate student achievement of desired results</td>
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<td>Goal:

Role:

Audience:

Situation:

Product or Performance:

Standards for Success:</td>
<td>Ongoing Formative Assessments:
ObservingStudents

Model and solve the problems
Find more than one solution
Decide whether they have all the combinations
Record their solutions
Find combinations for a given number
Write an equation for each combination of dot cards
Combine the 2 numbers rolled in games
Use tools to solve the problem
Retell the problem in their own words
Use strategies to solve problems
Come up with combinations that make a number
Interpret and make sense of the

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	problem **Other Formative Assessments** How Many of Each? • Students find five 2-addend combinations for a number up to 15 **How Many Books?** • Students will interpret and solve a story problem about combining two small quantities using numbers and equations and may also include pictures and words. **How Big Are Our Feet?** • Students will cover a foot outline with pennies or lima beans to assess counting and recording of larger numbers. **End of Unit Assessment** • Students will: 1) solve an addition probem and show their work; 2) show 5 ways to write number 11.

Suggested Resources

- Investigations:
- Teaching Student-Centered Mathematics, K-2 by Van de Walle, et. al
- Howard County Math Wiki, Grade 1
- K-5 Math Teaching Resources, online
- Howard County Math Wiki, Grade 1. June 23, 2014.
- K-5 Math Teaching Resources, K-5 Math Teaching Resources, LLC. http://www.k-5mathteachingresources.com/ . May 9, 2014.
- Russell, Susan Jo and Karen Economopoulos. (Second Edition, 2012) *Investigations in Number, Data, and Space, Grade 1: Unit 3, Solving Story Problems.* Upper Saddle River, NJ: Pearson.
- Van de Walle, John, et al. *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades Pre-K-2*, Second Edition. Boston: Pearson, 2014.

New Milford Public Schools

Committee Member(s): Elaine Annese, Nicole Gregory, Corby Kennison, Virginia Mooney, Stephanie Zappone Unit Title: Unit 4	Course/Subject: Math Grade Level: Grade 1 # of Weeks: 3

Identify Desired Results

Common Core Standards

Standards in the Unit

- (1.MD.4) Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Standards in the Classroom Routines

- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.MD.4) Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	**Essential Questions** Inquiry used to explore generalizations
• Data displays describe and represent data in alternative ways.	• Why display data in different ways?

Expected Performances
What students should know and be able to do

Students will know the following:

- Students pose questions and collect and sort information about data. They make representations of their findings and share them with others. Students sort a group of objects according to a given attribute.

Students will be able to do the following:

- Sort a group of objects according to a given attribute
- Represent a set of data with 2 categories
- Interpret a variety of data representations with 2 categories
- Describe a set of data, including how many are in each group, which group is greater, and how many people responded to the survey

Character Attributes
• Cooperation • Respect • Responsibility • Perseverance
Technology Competencies
• None

Develop Teaching and Learning Plan

Teaching Strategies:	Learning Activities:

Use a math workshop model with teacher-directed mini-lesson
• to provide students with repeated experiences with concepts and skills
• to provide time for teachers to work with small groups of students
Use games to develop concepts and practice skills
Use student-centered activities and worthwhile math tasks
Use a variety of grouping structures
• Collaborative groups, partners, individuals
Orchestrate class discussions
• Focus discussions on important mathematics and student strategies
• Elicit participation by all students over the course of several discussions
• Facilitate student to student discourse
Encourage students to represent and discuss their thinking strategies
Use Classroom Routines to provide on-going practice and review
• Start With/Get To
  • Connecting written number and number names
  • Using the number line as a tool for counting
  • Practicing the forward and backward counting sequences with numbers up to 100
• Morning Meeting
	• Sort shapes and describe them in terms of color, size, number of sides, or material
	• Play game Guess my Rule (with shapes, buttons, shells and people) to determine the attribute for the sorting rule
	• Collect, interpret, represent and answers questions about data using the Eagle and Whale activity as well as various class surveys such as "What Would You Rather Eat?" "How Old are You?" and "Curly Hair or Straight Hair?"

• Developing strategies for counting accurately (Attendance, Calendar, Weather) • Using the calendar as a tool for keeping track of time • Developing vocabulary to talk about time, such as morning, noon, afternoon • Collecting and recording data (weather) • Quick Images: coins • Identify and name coins	

Assessments

Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	**Other Evidence** Application that is functional in a classroom context to evaluate student achievement of desired results
Goal: Role: Audience: Situation: Product or Performance: Standards for Success:	**Ongoing Formative Assessments: Observing Students** • Sort shapes according to attribute • Know what to do with shapes that don't fit into any group • Make observations and predictions about data • Choose a rule that is based on an observable characteristic • Make representations that communicate the results of survey • Determine the number of responses by using tally marks • Generate and equation that represents the data **Other Formative Assessments** Deep Sea or Outer Space Students create a representation of data collected from their class and write about what they found out from their survey. **"Would you rather explore the deep sea or outer space?"** They also respond to the questions: **What did you find out from this survey?** **What surprised or interested you?**

	End of Unit Assessment **Guess My Rule** Children choose a rule that fits some buttons. Draw boxes around buttons that fit their rule. They identify their rule.

Suggested Resources

- Howard County Math Wiki, Grade 1. June 23, 2014.
- K-5 Math Teaching Resources, K-5 Math Teaching Resources, LLC. http://www.k-5mathteachingresources.com/ . May 9, 2014.
- Russell, Susan Jo and Karen Economopoulos. (Second Edition, 2012) *Investigations in Number, Data, and Space, Grade 1: Unit 4, What Would You Rather Be?* Upper Saddle River, NJ: Pearson.
- Van de Walle, John, et al. *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades Pre-K-2*, Second Edition. Boston: Pearson, 2014.

New Milford Public Schools

Committee Member(s): Elaine Annese, Nicole Gregory Corby Kennison, Virginia Mooney Stephanie Zappone Unit Title: Unit 5	Course/Subject: Math Grade Level: Grade 1 # of Weeks: 2

Identify Desired Results

Common Core Standards

Standards in the Unit

- (1.MD.1) Order three objects by length, compare the lengths of two objects indirectly by using a third object.
- (1.MD.2) Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.
- (1.G.3) Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

Standards in the Classroom Routines

- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.MD.4) Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
- (1.MD.3) Tell and write time in hours and half-hours using analog and digital clocks.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	**Essential Questions** Inquiry used to explore generalizations
• Mathematical operations are used in solving problems in which a new value is produced from one or more values. • Algebraic thinking involved choosing, combining, and applying effective strategies for answering quantitative questions. • Understanding place value leads to	• In what ways can operations affect numbers? Does the order of the numbers matter in subtraction? • How can different strategies be helpful when solving a problem? • How does a digit's position affect its value? • How does measurement change with

number sense and efficient strategies for computation.	different units of measurement?

Expected Performances
What students should know and be able to do

Students will know the following:

- This unit focuses on developing the ideas about linear measurement, which include understanding what length is and developing a foundation of skills for accurate linear measurement using nonstandard and standard units. As students measure with a variety of units, they investigate the idea that different-sized units result in different measurements. Using a real-world context, students measure with inch tiles and grapple with the idea of partial units and “at least as long as,” ideas that are important in both measurement and number and operations. They also solve story problems, which involve comparing length.
- Understand that the same result should be obtained when the same object is measured twice or when two different people measure the same object (using the same unit)
- Understand that measuring with different-sized units will result in different numbers

Students will be able to do the following:

- Use measurement techniques when measuring the distance with nonstandard and standard units. These techniques include: starting at the beginning, ending at the end, leaving no gaps or overlaps, measuring in a straight line, and keeping tract of the number of units.
- Describe a measurement that falls between two whole numbers
- show that measuring with different sized units will result in different numbers.
- Partition shapes in halves and fourths.

Character Attributes

- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies

- None

Develop Teaching and Learning Plan	

Teaching Strategies:
Use a math workshop model with teacher-directed mini-lesson
• to provide students with repeated experiences with concepts and skills
• to provide time for teachers to work with small groups of students
Use games to develop concepts and practice skills
Use student-centered activities and worthwhile math tasks
Use a variety of grouping structures
• Collaborative groups, partners, individuals
Orchestrate class discussions
• Focus discussions on important mathematics and student strategies
• Elicit participation by all students over the course of several discussions
• Facilitate student to student discourse
Encourage students to represent and discuss their thinking strategies
Use Classroom Routines to provide on-going practice and review
• Start With/Get To
  • Connecting written number and number names
  • Using the number line as a tool for counting
  • Practicing the forward and backward counting sequences with numbers up to 100
• Morning Meeting
  • Developing strategies for counting accurately (Attendance, Calendar, Weather)
  • Using the calendar as a tool for keeping track of time
  • Developing vocabulary to talk about time, such as morning, noon, afternoon
  • Collecting and recording data
	Learning Activities:
	• Understand measurement of length
	• Identify length of objects
	• Notice measurement of same object is should be the same when measured by different people.
	• Investigate measuring objects with a variety of nonstandard units of measurements
	• Discover measurements of same object will be different with different units
	• Develop accurate measurement skills
	• Compare lengths of different objects
	• Measure distances

(weather)
• Quick Images
  • Develop and analyze visual images for quantities up to 10
  • Re-creating an arrangement of objects
  • Finding the total of two or more single digit quantities
• Quick Survey
  • Collect, compare, represent, describe and compare data
  • Interpret different representations of data, including pictures, bar graphs, tallies, and Venn diagrams	

Assessments

Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	**Other Evidence** Application that is functional in a classroom context to evaluate student achievement of desired results
Goal: Role: Audience: Situation: Product or Performance: Standards for Success:	**Ongoing Formative Assessments: Observing Students** • Identify longest dimension to measure • Measure, count, and record accurately • Understand conception of *at least* • Use language such as "less than, more than, about" to describe "in-between" measurements • Understand difference in number of measurements are different based on unit measured in **Other Formative Assessments** How Long is This Fish? • Measure fish • Record measurement • Apply reason for finding **End of Unit Assessment** Sam and Max's Measurements • Understand that measureing with different size units will give different counts.

Suggested Resources

- Howard County Math Wiki, Grade 1. June 23, 2014.
- K-5 Math Teaching Resources, K-5 Math Teaching Resources, LLC. http://www.k-5mathteachingresources.com/ . May 9, 2014.
- Russell, Susan Jo and Karen Economopoulos. (Second Edition, 2012) *Investigations in Number, Data, and Space, Grade 1: Unit 5, Fish Lengths and Animal Jumps.* Upper Saddle River, NJ: Pearson.
- Van de Walle, John, et al. *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades Pre-K-2*, Second Edition. Boston: Pearson, 2014.

New Milford Public Schools

Committee Member(s): Elaine Annese, Nicole Gregory, Corby Kennison, Virginia Mooney, Stephanie Zappone Unit Title: Unit 6	Course/Subject: Math Grade Level: Grade 1 # of Weeks: 5

Identify Desired Results

Common Core Standards

Standards in the Unit

- (1.OA.1) Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- (1.OA.2) Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- (1.OA.3) Apply properties of operations as strategies to add and subtract.3 Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 +10 = 12. (Associative property of addition.)
- (1.OA.4) Understand subtraction as an unknown-addend problem. For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.
- (1.OA.5) Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- (1.OA.6) Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8= 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
- (1.OA.7) Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.
- (1.OA.8) Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 + □ = 11, 5 = □– 3, 6 + 6 =□.
- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.NBT.3) Compare two-two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols > , = , and < .

Standards in the Classroom Routines

- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.MD.4) Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	**Essential Questions** Inquiry used to explore generalizations
• Mathematical operations are used in solving problems in which a new value is produced from one or more values. • Algebraic thinking involved choosing, combining, and applying effective strategies for answering quantitative questions. • Understanding place value leads to number sense and efficient strategies for computation.	• In what ways can operations affect numbers? Does the order of the numbers matter in subtraction? • How can different strategies be helpful when solving a problem? • How does a digit's position affect its value?

Expected Performances
What students should know and be able to do

Students will know the following:

- Students work on composing numbers with two and three addends, and in a variety of contexts, they work with combinations that equal 10 and explore relationships among those combinations. The addition and subtraction work of this unit continues to focus on making sense of the operations of addition and subtraction, practicing adding and subtracting single-digit numbers, and solving addition and subtraction story problems. There is a focus on naming and comparing different strategies used for solving problems such as counting all, counting on or back, and using known-number combinations. Students also discuss how different tools such as objects, the number line, and 100 chart can be used to model and solve problems.

Students will be able to do the following:

- Find at least five two-addend combinations of 10
- Combine two small quantities by at least counting on
- Interpret (retell the action and sequence) and solve addition and subtraction story problems
- Subtract one small quantity from another

Character Attributes

- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies

- None

Develop Teaching and Learning Plan

Teaching Strategies:

Use a math workshop model with teacher-directed mini-lesson

- to provide students with repeated experiences with concepts and skills
- to provide time for teachers to work with small groups of students

Use games to develop concepts and practice skills

Use student-centered activities and worthwhile math tasks

Use a variety of grouping structures

- Collaborative groups, partners, individuals

Orchestrate class discussions

- Focus discussions on important mathematics and student strategies
- Elicit participation by all students over the course of several discussions
- Facilitate student to student discourse

Encourage students to represent and discuss their thinking strategies

Use Classroom Routines to provide on-going practice and review

- Start With/Get To
  - Connecting written number and number names
  - Using the number line as a tool for counting
  - Practicing the forward and backward counting sequences with numbers up to 100
- Morning Meeting

Learning Activities:

- Develop strategies for counting and combining groups of dots using Quick Images
- Generate equivalent expressions for a number
- Use numbers and standard notation (+,-,=) to record
- Develop fluency with the 2-addend combinations of 10 – Game Three Towers
- Find relationships among different combinations of numbers up to 10 using cubes/counters
- Solve related story problems
- Solve a problem where the total and one part are known using Games – Counters in a Cup and How Many Am I Hiding?
- Use 5 + 5 to reason about other combinations of 10
- Generate 2 addend combinations of 10 using games – Tens Go Fish, Counters in a Cup, How Many Am I Hiding?, Make 10, and Crayon Puzzle activities
- Prove that all the possible 2-addend combinations of a number have been found through modeling, cubes, and reasoning
- Add 2 or more single-digit numbers using game Dot Addition
- Reason about more, less, and equal amounts in Crayon Puzzles
- Visualize, retell, and model the action in an addition problem in

• Developing strategies for counting accurately (Attendance, Calendar, Weather) • Using the calendar as a tool for keeping track of time • Developing vocabulary to talk about time, such as morning, noon, afternoon • Collecting and recording data (weather) • Quick Images • Develop and analyze visual images for quantities up to 10 • Re-creating an arrangement of objects • Finding the total of two or more single digit quantities • Quick Survey • Collect, compare, represent, describe and compare data • Interpret different representations of data, including pictures, bar graphs, tallies, and Venn diagrams	game – Five-in-a-Row with Three Cards • Subtract one number from another, with initial totals of up to 12 – games "Five-in-a-Row: Subtraction", Roll and Record: Subtraction" • Develop strategies for solving and recording addition and subtraction story problems using counters/cubes

Assessments

Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	**Other Evidence** Application that is functional in a classroom context to evaluate student achievement of desired results
Goal: Role: Audience: Situation: Product or Performance: Standards for Success:	**Ongoing Formative Assessments: Observing Students** • Find combinations that make numbers through 10 • Accurately record solutions • Understand, record, and play games • Use strategies and record 2 addend combinations of 10 • Model and solve the problem • Decide if they have all the combinations that make a number • Tools students use to solve the problems (counters, fingers, number line)

	Other Formative Assessments Ten Crayons in All • Find and write all the combinations of 10 red and blue crayons. (Goal is for each student to find at least 5.) Five-in-a Row with Three Cards • Assesses counting on. • Record sums of two of the three numbers. • Record an equation for each sum and cover one of their sums with a counter on the board game paper – need 5 in a row either horizontally, vertically, or diagonally. **End of Unit Assessment** • Students will solve, record, and write an equation for one addition and one subtraction problem to assess how they 1) interpret and solve addition and subtraction story problems and 2) subtract one small quantity from another.

Suggested Resources

- Investigations:
- Howard County Math Wiki, Grade 1. June 23, 2014.
- K-5 Math Teaching Resources, K-5 Math Teaching Resources, LLC. http://www.k-5mathteachingresources.com/ . May 9, 2014.
- Russell, Susan Jo and Karen Economopoulos. (Second Edition, 2012) *Investigations in Number, Data, and Space, Grade 1: Unit 6, Number Games and Crayon Puzzles.* Upper Saddle River, NJ: Pearson.
- Van de Walle, John, et al. *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades Pre-K-2*, Second Edition. Boston: Pearson, 2014.

New Milford Public Schools

Committee Member(s):	Course/Subject: Math
Elaine Annese, Nicole Gregory, Corby Kennison, Virginia Mooney, Stephanie Zappone	Grade Level: Grade 1
Unit Title: Unit 7	# of Weeks: 3

Identify Desired Results

Common Core Standards

Standards in the Unit

- (1.OA.1) Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- (1.OA.2) Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- (1.OA.5) Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- (1.OA.6) Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8= 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
- (1.OA.7) Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.
- (1.OA.8) Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 + □ = 11, 5 = □– 3, 6 + 6 =□.
- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.NBT.3) Compare two-two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols > , = , and < .

Standards in the Classroom Routines

- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.MD.4) Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each

category, and how many more or less are in one category than in another.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	**Essential Questions** Inquiry used to explore generalizations
• Patterns can grow in equal intervals. • Various contexts can be represented by the same patterns.	• What is the increasing unit in the pattern? • How can recognizing patterns help solve problems?

Expected Performances
What students should know and be able to do

Students will know the following:

- Students revisit the number sequence as they count and write numbers to 100 and beyond. Students work on achieving fluency with the two-addend combinations of ten, they are introduced to ideas about equivalence (8 + 5 = 10 + 3), and they engage in activities that highlight the importance of ten in our Base- 10 number system. As students work with contexts that provide opportunities to count by groups of 2s, 5s, and 10s, they think about ways to organize objects so that they are easier to count and combine, and they begin to make sense of what it means to count by equal groups.

Students will be able to do the following:

- Construct, describe, and extend a repeating pattern with a structure AB, ABC, AAB, or ABB
- Identify the unit of a repeating patterns with a structure AB or ABC
- Describe how various AB or ABC patterns are alike
- Determine what comes several steps beyond the visible part of an AB, ABC, AAB, or ABB repeating pattern
- Construct, extend, and describe a pattern that has a constant increase for the sequences 1,3,5...; 2,4,6...; 1,4,7...; 2,5,8...; and 3,6,9... through counting and building.

Character Attributes

- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies

- None

Develop Teaching and Learning Plan

Teaching Strategies:

Use a math workshop model with teacher-directed mini-lesson

- to provide students with repeated experiences with concepts and skills
- to provide time for teachers to work with small groups of students

Use games to develop concepts and practice skills

Use student-centered activities and worthwhile math tasks

Use a variety of grouping structures

- Collaborative groups, partners, individuals

Orchestrate class discussions

- Focus discussions on important mathematics and student strategies
- Elicit participation by all students over the course of several discussions
- Facilitate student to student discourse

Encourage students to represent and discuss their thinking strategies

Use Classroom Routines to provide on-going practice and review

- Start With/Get To
  - Connecting written number and number names
  - Using the number line as a tool for counting
  - Practicing the forward and backward counting sequences with numbers up to 100
- Morning Meeting
  - Developing strategies for counting accurately (Attendance, Calendar, Weather)
  - Using the calendar as a tool for keeping track of time
  - Developing vocabulary to talk about time, such as morning, noon, afternoon
  - Collecting and recording data

Learning Activities:

- Determine what comes next in a repeating pattern by building and recording cube trains in student-determined patterns
- Compose a body movement pattern to match 12 cube train then record sequence
- Determine pattern sequences by completing activity, What Comes Next? and What Comes Here?
- Compare repeating and non-repeating patterns and determine the element of a repeating pattern associated with a particular counting number sequences with activities: Does it Repeat? and Break the Train and Make a Train
- Describe how a number sequence represents a situation with a constant rate of change through the Penny Jar activity and record the results as well as build a Staircase Tower, with cubes
- Determine and describe the number sequence associated with one of the elements in the unit of a repeating pattern students will complete activity What Comes Here with Shape Patterns?

(weather)
• Quick Images
  • Developing and analyze visual images for quantities up to 10
  • Re-creating an arrangement of objects
  • Finding the total of two or more single digit quantities
• Tell a Story
  • Connect standard notation (+, -, =) to the actions and relationships they represent
  • Create a story problem for a given expression
  • Develop strategies for adding and subtracting small numbers
  • Solve related problems	

Assessments

Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	**Other Evidence** Application that is functional in a classroom context to evaluate student achievement of desired results
Goal: Role: Audience: Situation: Product or Performance: Standards for Success:	**Ongoing Formative Assessments: Observing Students** • Explain how they are thinking about what color comes next • Make and describe their patterns • Create a movement pattern • Distinguish repeating from non-repeating patterns • Break repeating patterns into units and reassemble them • Record the number sequence that corresponds to the penny situation • Count and record the height of their towers • Determine the height of their next tower • Identify the number sequence for each of their shapes **Other Formative Assessments** Make a Repeating Pattern • Students will make and color a repeating pattern, identify the unit of the pattern and answer

	questions about extending the pattern **End of Unit Assessment** • Students determine and illustrate which shape in a repeating pattern comes several steps beyond the pattern • Students create a repeating pattern, using pattern block shapes and record it with the Pattern Block Cut-outs • Students record the number sequence for each shape in the pattern and answer questions such as, "Will the 17th shape be a frog?"

Suggested Resources

- Howard County Math Wiki, Grade 1. June 23, 2014.
- K-5 Math Teaching Resources, K-5 Math Teaching Resources, LLC. http://www.k-5mathteachingresources.com/ . May 9, 2014.
- Russell, Susan Jo and Karen Economopoulos. (Second Edition, 2012) *Investigations in Number, Data, and Space, Grade 1: Unit 7, Color, Shape, and Number Patterns.* Upper Saddle River, NJ: Pearson.
- Van de Walle, John, et al. *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades Pre-K-2*, Second Edition. Boston: Pearson, 2014.

New Milford Public Schools

Committee Member(s): Elaine Annese, Nicole Gregory, Corby Kennison, Virginia Mooney, Stephanie Zappone Unit Title: Unit 8	Course/Subject: Math Grade Level: Grade 1 # of Weeks: 6

Identify Desired Results

Common Core Standards

Standards in the Unit

- (1.OA.1) Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- (1.OA.2) Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- (1.OA.3)
- (1.OA.5) Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- (1.OA.6) Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8= 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).
- (1.OA.7) Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.
- (1.OA.8) Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 + □ = 11, 5 = □– 3, 6 + 6 =□.
- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.NBT.2) Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
  (1.NBT.2.a) 10 can be thought of as a bundle of ten ones — called a "ten."
  (1.NBT.2.b) The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
  (1.NBT.2.c) The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

- (1.NBT.3) Compare two-two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols > , = , and < .
- (1.NBT.4) Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, 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 and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
- (1.NBT.5) Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
- (1.NBT.6) Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), 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 and explain the reasoning used.

Standards in the Classroom Routines

- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.MD.4) Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
- (1.MD.3) Tell and write time in hours and half-hours using analog and digital clocks..

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	**Essential Questions** Inquiry used to explore generalizations
• Mathematical operations are used in solving problems in which a new value is produced from one or more values. • Algebraic thinking involved choosing, combining, and applying effective strategies for answering quantitative questions. • Understanding place value leads to number sense and efficient strategies for computation.	• In what ways can operations affect numbers? Does the order of the numbers matter in subtraction? • How can different strategies be helpful when solving a problem? • How does a digit's position affect its value?

Expected Performances
What students should know and be able to do

Students will know the following:

- Students revisit the number sequence as they count and write numbers to 100 and beyond. Students work on achieving fluency with the two-addend combinations of ten, they are introduced to ideas about equivalence (8 + 5 = 10 + 3), and they engage in activities that highlight the importance of ten in our Base- 10 number system. As students work with contexts that provide opportunities to count by groups of 2s, 5s, and 10s, they think about ways to organize objects so that they are easier to count and combine, and they begin to make sense of what it means to count by equal groups.

Students will be able to do the following:

- Identify, read, write, and sequence numbers to 120
- Count by groups in meaningful ways
- Calculate various ways to make ten fluently
- Add and subtract two digit numbers using multiples of ten

Character Attributes

- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies

- None

Develop Teaching and Learning Plan

Teaching Strategies:

Use a math workshop model with teacher-directed mini-lesson

- to provide students with repeated experiences with concepts and skills
- to provide time for teachers to work with small groups of students

Use games to develop concepts and practice skills

Use student-centered activities and worthwhile math tasks

Use a variety of grouping structures

- Collaborative groups, partners, individuals

Orchestrate class discussions

- Focus discussions on important mathematics and student strategies
- Elicit participation by all students

Learning Activities:

- Identify, read, write and sequence numbers to 120
- Count from known quantity
- Organize objects to count effectively
- Play Ten Turns to encourage counting on
- Use strategies to solve problems
- Play Missing Numbers to revisit number strategies
- Play Counting Strips to reinforce sequencing numbers
- Combine things to count in groups
- Develop strategies for counting in groups (skip counting 2, 4, 5 and 10)
- Record strategies for counting and

over the course of several discussions
• Facilitate student to student discourse
Encourage students to represent and discuss their thinking strategies
Use Classroom Routines to provide on-going practice and review
• Start With/Get To
  • Connecting written number and number names
  • Using the number line as a tool for counting
  • Practicing the forward and backward counting sequences with numbers up to 100
• Morning Meeting
  • Developing strategies for counting accurately (Attendance, Calendar, Weather)
  • Using the calendar as a tool for keeping track of time
  • Developing vocabulary to talk about time, such as morning, noon, afternoon
  • Collecting and recording data (weather)
• Quick Images
  • Develop and analyze visual images for quantities up to 10
  • Re-creating an arrangement of objects
  • Finding the total of two or more single digit quantities
• Tell a Story
  • Connect standard notation (+, -, =) to the actions and relationships they represent
  • Create a story problem for a given expression
  • Develop strategies for adding and subtracting small numbers
  • Solve related problems
	combining
	  • Explore 2:1 and 5:1 relationships
	  • Play How Many Hands grouping to develop skip counting by 2
	• Fluency of facts to 10
	• Find missing addends
	  • Use addition notations + and =
	  • Play Make 10 and Tens Go Fish games to practice fact fluency (to 10)
	  • Play Roll Tens to practice making and counting groups of 10
	  • Determine equivalence of given expressions
	  • Add groups of equal amounts

Assessments

Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	**Other Evidence** Application that is functional in a classroom context to evaluate student achievement of desired results
Goal: Role: Audience: Situation: Product or Performance: Standards for Success:	**Ongoing Formative Assessments: Observing Students** • Find missing numbers • Fluency of addends • Sequence numbers • Strategies for problem solving **Other Formative Assessments** • Counting Strips • Read numbers on number strips with numbers should be sequenced correctly • Find and correct errors How Many Squares • Count squares and use strategies to count by 2, 4, 5 or 10. Record strategies. **End of Unit Assessment** • Assess students counting by groups and fact fluency

Suggested Resources

- Howard County Math Wiki, Grade 1. June 23, 2014.
- K-5 Math Teaching Resources, K-5 Math Teaching Resources, LLC. http://www.k-5mathteachingresources.com/ . May 9, 2014.
- Russell, Susan Jo and Karen Economopoulos. (Second Edition, 2012) *Investigations in Number, Data, and Space, Grade 1: Unit 8, Twos, Fives, and Tens.* Upper Saddle River, NJ: Pearson.
- Van de Walle, John, et al. *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades Pre-K-2*, Second Edition. Boston: Pearson, 2014.

New Milford Public Schools

Committee Member(s): Elaine Annese, Nicole Gregory, Corby Kennison, Virginia Mooney, Stephanie Zappone Unit Title: Unit 9	Course/Subject: Math Grade Level: Grade 1 # of Weeks: 2

Identify Desired Results

Common Core Standards

Standards in the Unit

- (1. G.1) Distinguish between defining attributes (e.g. triangles are closed and three-sided) versus non-defining attributes (e.g. color, orientation, overall size); build and draw shapes to possess defining attributes.
- (1. G.2) Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. (Students do not need to learn formal names such as "right rectangular prism.")

Standards in the Classroom Routines

- (1.NBT.1) Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- (1.MD.4) Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
- (1.MD.3) Tell and write time in hours and half-hours using analog and digital clocks.

Enduring Understandings Generalizations of desired understanding via essential questions (Students will understand that …)	**Essential Questions** Inquiry used to explore generalizations
• Geometric attributes (such as shapes, lines, angles, planes) provide descriptive information about an object's properties and position in space and support visualization and problem solving.	• How does geometry better describe objects?

Expected Performances
What students should know and be able to do

Students will know the following:

- Students revisit the number sequence as they count and write numbers to 100 and beyond. Students work on achieving fluency with the two-addend combinations of ten, they are introduced to ideas about equivalence (8 + 5 = 10 + 3), and they engage in activities that highlight the importance of ten in

our Base- 10 number system. As students work with contexts that provide opportunities to count by groups of 2s, 5s, and 10s, they think about ways to organize objects so that they are easier to count and combine, and they begin to make sense of what it means to count by equal groups.

Students will be able to do the following:

- Attend to features of 3-D shapes, such as overall size and shape, the number of shape of faces, and the number of corners.
- Match a 2-D representation to a 3-D shape or structure

Character Attributes

- Cooperation
- Respect
- Responsibility
- Perseverance

Technology Competencies

- None

Develop Teaching and Learning Plan

Teaching Strategies:

Use a math workshop model with teacher-directed mini-lesson

- to provide students with repeated experiences with concepts and skills
- to provide time for teachers to work with small groups of students

Use games to develop concepts and practice skills

Use student-centered activities and worthwhile math tasks

Use a variety of grouping structures

- Collaborative groups, partners, individuals

Orchestrate class discussions

- Focus discussions on important mathematics and student strategies
- Elicit participation by all students over the course of several discussions
- Facilitate student to student discourse

Encourage students to represent and discuss their thinking strategies

Use Classroom Routines to provide on-going practice and review

Learning Activities:

- Develop vocabulary to describe 3-D shapes and their attributes using Shape Cards
- Compare size, shape, and orientation of objects using Geoblock Footprints master and Comparing Cube Things activity
- Match a 3-D object to a 2-D outline of one of its faces or picture of the object using Build a Wall activity, Geoblock Footprints, and Copying Cube Things
- Identify the characteristics of 3-D objects by touch using activity “Blocks in a Sock”
- Relate the size and shape of an object to its use by using “Mystery Box Collection” activity
- Describe characteristics of 3-D shapes
- Make 3-D objects out of 2-D pieces using Box Pieces – Set A, B
- Make a 2-D drawing of a 3-D object.
- Build a 3-D construction from a 2-D drawing using geoblocks

• Morning Meeting
  • Developing strategies for counting accurately (Attendance, Calendar, Weather)
  • Using the calendar as a tool for keeping track of time
  • Developing vocabulary to talk about time, such as morning, noon, afternoon
  • Collecting and recording data (weather)
• Quick Images
  • Develop and analyze visual images for quantities up to 10
  • Re-creating an arrangement of objects
  • Finding the total of two or more single digit quantities
• Quick Survey
  • Collect, count, represent, describe, and compare data
  • Interpret different representations of data, including pictures, bar graphs, tallies, and Venn diagrams
• Tell a Story
  • Connect standard notation (+, -, =) to the actions and relationships they represent
  • Create a story problem for a given expression
  • Develop strategies for adding and subtracting small numbers
  • Solve related problems
	• Recognize shapes in the world
	• Plan a geometric structure with limited space and materials
	• Describe 3-D structures using “Describing My Building”
	• Visualize and estimate the paces and turns required to follow a path
	• Give, follow, and record directions for following a path using a class code to be developed by the class
	• Count and add to compare the distances of different paths

Assessments	
Performance Task(s) Authentic application to evaluate student achievement of desired results designed according to GRASPS (one per marking period)	**Other Evidence** Application that is functional in a classroom context to evaluate student achievement of desired results
Goal: Role: Audience: Situation: Product or Performance: Standards for Success:	**Ongoing Formative Assessments: Observing Studen** • Choose 3-D shapes to match given outlines • Use language to describe and compare 3-D shapes • Differentiate between different sizes of the same shape • Find the correct 3-D blocks to put in the sock based on the 2-D photos • Match the blocks to footprints (thinking and language they use) • Approach the task of drawing their own building • Build from another student's plan • Design their building with limited space and number of blocks used **Ongoing Formative Assessments: Observing Students** • Differentiate between congruent and non-congruent shapes • Match 2-D picture to 3-D shape • Identify characteristics of 3-D shape • Solve problems • Draw 3-D shapes including features • Name shapes • Distingish between characteristics or 3-D and 2-D shapes **Other Formative Assessments** • Blocks in a Sock • Identify characteristics of 3-D shape • Construct a 3-D shape from a 2-D picture • Matching Blocks to Outlines • Match 2-D picture to a 3-D structure

	End of Unit Assessment Matching Plans to Buildings • Identify features of 3-D shape • Construct a 3-D shape from a 2-D picture

Suggested Resources

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- K-5 Math Teaching Resources, K-5 Math Teaching Resources, LLC. http://www.k-5mathteachingresources.com/ . May 9, 2014.
- Russell, Susan Jo and Karen Economopoulos. (Second Edition, 2012) *Investigations in Number, Data, and Space, Grade 1: Unit 9, Blocks and Boxes.* Upper Saddle River, NJ: Pearson.
- Van de Walle, John, et al. *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades Pre-K-2*, Second Edition. Boston: Pearson, 2014.